The role of health problems and drug treatments in accidental injury at work

Report submitted to the IOSH Research Committee

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Abstract

Various common health problems and their associated treatments may, in theory, increase the risk of accidental injury at work. Employers need an evidence base, both to ensure the physical safety of their workers and third parties, and to avoid needless restrictions on work opportunity, especially in older workers. Using a research database from primary care, based on the GP medical records of 6% of the British population over a 20-year period, we have analysed the associations between certain medical problems (epilepsy, diabetes mellitus, various mental health disorders, impairments of hearing and vision, problems of balance, and drugs which may affect arousal and concentration) and injuries at work about which patients consulted their GPs or hospital services. Moderately increased risks of workplace injury were found for several mental health problems and their treatments, and for problems of vision, hearing and balance; but no important elevation in risk from diabetes, epilepsy, or their complications or treatments. This report argues against blanket exclusion of individuals on health grounds and calls instead for individualised risk assessment. It also provides estimates of the extent to which risks are modified by health problems, on the average, to inform risk assessment. Caution in occupational placements may be warranted in some ‘high risk’ jobs.

Executive Summary

In principle, many health problems, impairments and drug treatments, carry the potential to increase risks of workplace injury. Considering six of these problems – epilepsy, diabetes mellitus, mental health disorders, impairments of vision and hearing, disorders of balance – and drug treatments affecting awareness, cognition and behaviour, we have previously established that the evidence base on the magnitudes of risks is relatively small and limited in quality and specificity. Risks may be moderately elevated in each circumstance, but design limitations in most studies allow the possibility that risks may have been over-estimated. An evidence base is needed to enable employers to manage risks fairly and without applying restrictions indiscriminately. As people work to older ages and the prevalence of disability rises in the workforce, so the need for risk-based evidence grows and assumes a greater importance.

In this context, we have analysed risks of workplace injury arising from epilepsy, diabetes, mental health disorders, impairments of vision and hearing, disorders of balance, and certain drug treatments using a research database containing the primary care medical records of about 6% of the British population over two recent decades.

The Clinical Practice Research Datalink (CPRD, formerly known as the GPRD) is maintained by an agency of Government as a research resource. For patients in participating practices, it logs all consultations with a family doctor, referrals to hospital, all prescriptions and other medical events with a high degree of completeness (albeit by means of large number of complex drug, diagnosis and event codes). In a scoping exercise we identified all of the medical codes indicating likely or definite occupational injury. The data holder then supplied us with an anonymised disc containing, after certain pre-defined exclusions, the medical records of 1,348 cases of workplace injury (479 diagnostic codes) together with those of 6,652 controls that had been individually matched to cases in terms of age, sex and general practice. Separately we identified 149 codes relevant to epilepsy and its treatment, 551 for diabetes and diabetic care, 416 codes mental health problems, 183 for impairments of vision or hearing, 49 relating to dizziness and disorders of balance, and 219 relating to drugs with psychotropic effects. Cases and controls were compared in terms of their medical history prior to the injury consultation in the case the statistical method conditional logistic regression. Associations were expressed as Odds Ratios (a form of relative risk), with 95% confidence intervals used to describe the statistical uncertainty in point estimates of risk. Analysis also allowed for a medical record of problematic or heavy drinking (coded in various ways).

No important associations were found with diabetes or epilepsy, even when analysis focused on cases with medical complications or use of treatments known to affect consciousness, arousal, concentration and behaviour. By contrast, the odds of workplace injury were increased by some 46% in those with a prior history of a mental health disorder and by 59% in those who had been prescribed a hypnotic, anxiolytic or antidepressant drug. Elevations in risks were found across a range of common mental health problems and across all the major classes of psychotropic drug treatment. It is estimated that about 1 in 10 to 1 in 11 of workplace injuries in the workforce as a whole might be avoidable if the hazard posed by mental health problems and their treatments could be fully controlled.

Eye problems and ear problems were similarly associated with an increased risk of occupational injury, the odds of injury being increased by some 32% and 64% respectively. Higher risks were evident for blindness, medically defined visual impairments, and chronic infections of the middle ear; deafness, hearing impairment, and use of a hearing aid also carried a higher risk (odds of injury increased 28%), although findings here, in contrast to other positive associations, were not statistically significant.

Ear problems can also be associated with disorders of balance. Risks were therefore analysed in relation to vertigo and various relevant disorders of the inner ear. Such disorders, if present in the 12 months before injury consultation, increased the odds of injury by over 80%.

It should be noted that workers do not randomly assort into occupations; in practice, selection forces are in operation, including health-based selection. Thus, those in poorer health tend not to enter or to prematurely exit risk-prone jobs, relative to healthier colleagues. Lack of an important association with diabetes and epilepsy may be explained in this way. In any event, the case for more stringent restriction of work practice on health grounds is not supported by this study. However, despite such potential selection out of work, elevated risks were still seen in relation to common mental health problems, common problems of vision and hearing and disorders of balance. An important potentially avoidable minority of injuries appear to arise from such medical problems.

However, no case exists for blanket exclusion of such individuals on health grounds. A more appropriate response to this moderate elevation in risk would involve individualised risk assessment, with greater weight to health problems that are currently active and to those in workers engaged in safety critical occupations and roles that bear substantial responsibility for the safety of others.

Regarding future research needs and opportunities, the possibility remains that important numbers of people with epilepsy and diabetes are being excluded from employment through restrictions that may not be necessary; a next step in exploring this would be to investigate the experience of representative samples of people of working age with epilepsy and diabetes in relation to recruitment and employment. The value of the CPRD database a research tool for investigating health-based risks of workplace injury could be considerably enhanced in future if patients' occupations were routinely recorded and logged within the system.

Definitions and glossary

Attributable fraction	The potentially avoidable fraction of disease/injury within a population, assuming that observed associations are causal. 'Attributable fraction in the exposed' refers to the potentially avoidable fraction in those with exposure (*e.g. of workplace injuries in people with epilepsy*); population attributable fraction is the potentially avoidable fraction in the whole population, whether exposed or not (*e.g. of workplace injuries in the total working population*).
Bias	A tendency (e.g. through study design, data collection, analysis, interpretation, review or publication) to obtain results or conclusions that systematically depart from the truth – either under- or over-estimating the size of an effect, for example.
BNF	The British National Formulary is a joint publication of the BMA and the Royal Pharmaceutical Society, published under the authority of a Joint Formulary Committee comprising representatives of these two bodies, the Department of Health, the Medicines and Healthcare Products Regulatory Agency and a national guideline producer. The BNF is a primary reference source for prescribers, pharmacists and other healthcare professionals.
Case-control Study	A study which compares people who have a given characteristic (cases) with people who do not (controls) in terms of exposure to one or more risk factors of interest. Have cases been more exposed than non-cases? The outcome is expressed as an **odds ratio**, a form of **relative risk**. (*In this study, cases were individuals who had consulted medical services with a workplace injury and the exposures were medical problems they may have had, or treatments they may have received*).
Cataract	A clouding of the lens inside the eye which leads to a decrease in vision. The opacities that cause this effect are often due to biological ageing, but also *associated with certain diseases such as diabetes*.
Cohort Study	A study in which subsets of a defined population can be identified who are, have been, or will in the future, be exposed or not exposed to a factor hypothesised to influence the risk of a particular outcome occurring. *For example, a study in which people are classified as having epilepsy or not and each group is followed over time and assessed in terms of its risk of occupational injury*. Findings are typically expressed in terms of a **relative risk** of morbidity or mortality.
Confidence Interval	The relative risk reported in the study is only an *estimate* of the true value in the underlying population; a different sample may give a somewhat different estimate. The confidence interval essentially defines a plausible range in which the true population value lies, given the extent of statistical uncertainty in the data. The commonly chosen 95% CI gives a range in which the true value would be found in 95% of repetitions of the study (in the absence of bias and confounding). *Small studies generate much uncertainty and a wide range, whereas very large studies provide a narrower band of compatible values*.
Confounding	This arises when the association between exposure and diseases is explained in whole or part by a third factor (confounder), itself a cause of the disease that occurs to a different extent in the groups being compared. Analyses try to mitigate the effects of ('control for') confounding in various ways such as restriction (only studying homogenous sub-groups), matching (analysing groups that share confounders to a similar extent), stratification (considering the findings separately within strata of potential confounders), and mathematical modelling (statistical adjustment for the potential effects of confounding).
Contrast sensitivity	The ability of the visual system to distinguish between an object and its background.

Correlation coefficient	A measure of association that indicates the degree to which two variables have a linear relationship (on a scale from -1, a perfect inverse relationship, to +1, a perfect positive relationship).
CPRD	The Clinical Practice Research Data link is a research database established in primary care to enable post-marketing surveillance of drugs and their safety. The CPRD was formerly known as the GPRD (General Practice Research Database). As explained in this report, the database logs all medical events (e.g. consultations with a doctor, referrals to hospital, prescriptions) in patients from participating practices, some 6% of the British population, in anonymised form.
Cross-sectional study	A study which compares the prevalence or odds or characteristics between groups at a given point in time or over a given interval.
Glaucoma	A term describing a group of eye disorders which share in common a raised intraocular (within the eye) pressure. This can permanently damage vision in the affected eye and lead to blindness if left untreated, through its effect on the optic nerve.
Glycosylated haemoglobin	A form of haemoglobin that is measured to obtain the average plasma glucose concentration – a marker for *average blood glucose levels* over the previous months prior to measurement.
GPRD	See CPRD.
Grand mal	A grand mal seizure (also known as a tonic-clonic seizure) involves loss of consciousness and violent muscle contractions – it is the type of seizure most people picture when they think about seizures in general.
Hypoglycemia	Low blood sugar
ICD	The International Classification of Diseases of the World Health Organisation is a standard system used to classify diseases and health problems systematically.
Ketoacidosis	A metabolic state associated with high concentration of ketone bodies, formed by the breakdown of fatty acids.
Labyrinthine and vestibular disorders	Conditions that affect the inner ear, causing vertigo and disturbances of balance and hearing. The labyrinth in the inner ear contains organs of balance, which may become disturbed by infections of the inner ear, among other things.
Logistic regression	A statistical model used to estimate the probability of an event occurring from one or several predictor variables. The model assumes a linear relation between the predictor variables and the natural log of the odds of disease. The technique is modified in **conditional logistic regression** to allow for matching of analysed subjects on certain characteristics (*in this study, age, sex and general practice*).
Macular degeneration	An age-related gradual loss of central vision arising when the macula, the part of the eye responsible for central vision, loses function.
Meniere's disease	A disorder of the inner ear that can affect hearing and balance and result in episodes of vertigo, ringing in the ears and hearing loss.
Neuropathy	A term used to indicate damage to nerves – *in the context of this report, especially the nerves supplying sensation and function to the lower limbs*.
Odds Ratio	A measure of the strength of association between exposure and disease. It is the odds of exposure in those with disease relative to the odds of exposure in those without, expressed as a ratio. For rare exposures, odds and risks are numerically very similar so

	the odds ratio can be thought of as a **relative risk**. A value greater than 1.0 indicates a positive association between exposure and disease.
Optic neuritis	Optic neuritis – inflammation of the optic nerve that may cause a complete or partial loss of vision.
Otitis media	A build-up of fluid in the middle ear, which may be acute or chronic, and which often arises from infection.
Peripheral vascular disease	Disease causing narrowing of the arteries – *in the context of this report, the blood supply to the lower limbs*.
Person-years	A measurement combining persons and time as the denominator in incidence and mortality rates when, for varying periods, individuals are at risk of developing disease or dying.
Petit mal	Petit mal (also known as absence) seizures are characterised by a brief loss and return of consciousness without any marked evidence of having had a fit.
Prevalence rate	The total number of all individuals who have a disease or attribute at a particular time (or during a particular period) divided by the population at risk of having that disease or attribute at this point in time. (*This is a proportion, although sometimes called a rate*.)
Prevalence Ratio	A ratio that compares two prevalences, typically that in an exposed group as compared with an unexposed group.
Psychotropic drug	A drug that affects brain function, resulting in alterations in perception, mood, consciousness, cognition or behaviour.
Relative Risk	The ratio of the risk of disease, death, or particular event, among the exposed to that among the unexposed (where 'risk' represents the probability that the event will occur).
Retinal vein occlusion	Blockage of the small veins that carry blood away from the retina (the layer of tissue at the back of the inner eye). Retinal vein occlusion is most often caused by hardening of the arteries and formation of a blood clot – *risk factors include diabetes*.
Retinopathy	Disease affecting the retina (the light-sensitive layer of cells at the back of the eye, the "seeing" part of the eye).
Sensitivity analysis	Additional analysis undertaken to determine the robustness of an assessment by examining the extent to which results are affected by changes in methods, values of variables, or other assumptions.
Statistical significance and p values	Statistical significance refers to the probability that a result as large as that observed, or more extreme still, could have arisen simply by chance. The smaller the probability, the less likely it is that the findings arise by chance and the more likely they are to be true. A "statistically significant" result is one of which the chance alone probability is suitably small. (*Conventionally this is often less than 5% ($p \leq 0.05$.*)
Status epilepticus	A state of persistent seizure – a seizure which continues for a prolonged period or when convulsive seizures occur one after another with no recovery in between.
Temporal lobe epilepsy	Epilepsy characterised by recurrent seizures originating in a certain part of the brain, the temporal lobe.
Vertigo	A sensation that you, or the environment around you, is moving or spinning – this has many possible causes, and may result in loss of balance, nausea and light-headedness.

Background

The populations of Western countries are ageing. Therefore, the prevalence among workers of common age-related health conditions is rising, as is the proportion of the workforce taking prescribed medicines.

Potentially such factors could increase the risk of accidental injury at work. Certain widely used medicines (e.g. benzodiazepines, narcotic analgesics) can impair arousal, concentration, cognition, and psychomotor performance, while some common illnesses can result in sudden incapacity (e.g. diabetes mellitus, epilepsy), impaired judgment (e.g. mental health disorders), or sensory deficit (e.g. cataracts).

Hand in hand the Government has introduced legislation to abolish the default retirement age and older workers are increasingly intent on working on, some to address higher levels of personal indebtedness and reduced savings/pension benefits, others because they value the right and opportunity to work. The onus is thus being placed on employers to manage any associated risks to health and safety equitably and appropriately. Managers face the dilemma, on the one hand, of ensuring the physical safety of their workers and third parties, and, on the other, of avoiding needless restrictions on work opportunity among older workers. An evidence base is urgently needed to help them.

We begin this report by summarising previously available evidence on health and risk of occupational injury. Then, using a medical research database from general practice, we extend observations by exploring the occupational injury experience of some 6% of general population over two recent decades. We estimate risks of injury relating to a range of common health problems (depression, anxiety, diabetes, epilepsy, disorders of vision and hearing, problems of balance) and prescription drugs known to have psychotropic effects (e.g. tranquillisers, antidepressants, blood sugar-lowering treatments).

Literature review

Evidence in this area of risk management is currently limited and indirect, stemming mainly from studies of road traffic accidents (RTAs) in elderly non-vocational drivers[1]. By contrast, evidence from the occupational setting is scant. We have previously conducted a systematic search in the medical bibliometric databases Medline, Embase and PsychInfo employing search terms for occupational injury, medications and a broad range of diseases and impairments[2]. We found 38 reports, 19 concerning problems of hearing, 14 on visual difficulties and 15 on mental health. Surprisingly, however, we found few reports on epilepsy, diabetes and use of psychotropic medication. Reports came largely from farming communities in the US.

Limitations of previous research

Most of the occupational studies identified by our review suffered important limitations, especially a potential for inflationary bias (bias that could cause overestimation of relative risks (RR)). Typically such bias may arise from two sources – (i) non-independent assessment of exposures and outcomes and (ii) reverse causation. Most studies were prey to both biases being cross-sectional with exposures and outcomes ascertained by

self-report at the same time (concern 1) and with a lack of clarity about whether exposures such as tranquilliser use and low mood preceded injury or followed it (concern 2). In only a few studies were such concerns overcome by independent assessment of exposure and outcome and assurance over the timing of events. For example, in a case-control study by Voaklander *et al*[3], records of hospital attendance for a work-related injury were linked with records of prescribed medication for ICD-defined disorders, the timings of each being known and analysis focussed on prescriptions issued prior to injury; similarly, Gilmore *et al*[4] collected such information in relation to hospital billing records (outcome) and a dispensary database (exposure).

With these caveats in mind, we summarise findings on some health problems of particular interest, updating each of the searches to 2013. (The potential for meta-analysis was explored in this summary, but owing to differences in definitions of exposure and outcome, we have elected not to derive meta-estimates of risk.)

Epilepsy

Epilepsy is a comparatively common chronic neurological disorder, with 5 to 6 per 1,000 people of working age in the UK under active treatment[5]. Serious injury arising from epileptic seizures is uncommon. Nonetheless, epilepsy is a recognised cause of avoidable mortality, ranked fifth highest in terms of years of life lost before age 75 years in men and eighth highest in women[6]; in one cohort study of people with epilepsy dying over an 8-year period, 30% succumbed to accidental injuries, such as drowning or burns[7].

An important consideration in workers prone to sudden loss of consciousness or control, including workers with epilepsy, is their safe placement and that of others potentially affected by their work. This has led to restrictions on employment in roles with high responsibility for third parties, such as train, plane and ambulance driving, and in more hazardous activities, such as work at heights[8]. On the other hand, evidence exists that some people with epilepsy suffer employment discrimination beyond that justified by evidence-based risk assessment[9] and in consequence many attempt to conceal their medical histories from employers[10]. In one community-based survey from north east England the unemployment rate among economically active people with epilepsy was twice that of age and sex-matched controls without epilepsy[11]. Against this background, careful risk assessment is needed before restricting access to employment opportunities. However, few research investigations have formally explored the risks of workplace injury in patients with epilepsy (Table 1), including only four[12-15] with quantified estimates of risk. One of these, a small investigation, came from the UK[12]. Relative risks (odds ratios (ORs)) were raised about 1.5 to 2.5-fold, although findings were not statistically significant at the 5% level in three of the four studies, including a very large cross-sectional study by Zwerling *et al*[14]. The studies that reported higher risks were rated of lower methodological quality.

Supplementing this small occupational literature are various reports on RTAs in non-vocational drivers. Thus, for example, a population-based US cohort study of 30,420 licensed drivers aged 16 to 90 years, with and without epilepsy or diabetes, resident in seven contiguous ZIP Code areas, reported (among subjects with epilepsy) a “standardised mishap ratio”(relative risk) for moving violations of 1.13 (P=0.26) and 1.33 (P=0.4) for accidents[16]. The authors concluded that such non-vocational drivers had a slightly increased risk of traffic

Table 1: Previous studies on work injury and epilepsy

First author, (year) location	Design	Study populations	Sources of information on epilepsy (E) and on injury (I)	Accident/injury definition	Numbers analysed	OR	95%CI	Confounders considered	Quality rating*
Dasgupta AK, (1982) England[12]	X	45 workers with epilepsy and 38 partially matched controls from a steel company	E: Medical records I: Company accident records	Accident at work over a 1-year period	83	2.0	0.6 to 6.7	a, s, pl, t, j	+
Lewis MQ, (1998) USA[13]	X	Principal farm operators, chosen from an agricultural database in Iowa	E: Self-completed questionnaire – 'ever had seizures' I: Self-completed questionnaire	Injury over the past 12 months for which medical attention or treatment was received from a doctor or medical assistant, or which led to reduced activities for ≥0.5 days, or loss of consciousness	390	1.61	0.12 to 21.82	s, pl, t, j	+(+)
Zwerling C, (1997) USA[14]	X	1 in 6 sample of 18-65 yr-old workers (other than farmers) participating in the National Health Interview Survey, a nationwide Census Bureau multi-stage probability survey of US households	E: Self-report at interview I: Self-report at interview	Injury in the past year that caused a residual limitation at the time of interview	~76,600	1.56	0.50 to 4.89	a, s, t, j	+++
Cornaggia CM, (2006)[15] 8 European countries	C	631 patients with epilepsy ≥18 yrs (identified from clinic attendance); 592 controls, matched by age, sex, residency and social class, volunteered by cases from relatives, friends, or workmates	E: Physicians' hospital diagnosis I: Self-recorded in a follow-up diary	Event at work arising from sudden unexpected cause (not a disease), leading to physical damage, requiring medical attention, or resulting in financial loss	684	2.5	1.1 to 6.4	a, s, pl, t	+

*X - Cross-sectional; C – cohort; a - age; s - sex; pl - location; t - time period; j - job demands; * As defined in reference 8 (based on assessed potential for bias or confounding, response rates and completeness of reporting, + = weakest, ++++=strongest*

absolute risks[17]. And a survey of patients counselled by neurologists because of recently diagnosed epilepsy showed a risk of accident in the past year that did not differ from that expected.[18] By contrast, a much smaller Danish study[19], based on a register of patients with epilepsy and matched controls, reported a seven-fold higher attendance rate in casualty following an RTA among those with epilepsy. Experience in the UK comes closer to the first of these reports: when 16, 958 drivers with a previous history of epilepsy and 8,888 drivers without epilepsy completed a questionnaire for the Transport Research Laboratory, differences in accident risk between the groups in the previous three years were fairly small after allowance for differences in age, sex, driving experience and mileage[20]. The RR was 1.10 (95%Confidence Interval (CI) 1.01 to 1.20) for any accident and use of any antiepileptic drug, 1.08 (95%CI 0.99 to 1.17) among those whose epilepsy involved reliable warning aura, and 0.74 (95%CI 0.62 to 0.87) – i.e. a significantly *reduced* risk – if there had been a seizure-free period of >3 years.

The last two statistics highlight a degree of selection in operation – people with recent seizures may not legally drive and by the same token, people with troublesome recurrent seizures may be selected out of work where the consequences of lost control would be serious. In keeping with this, a study of workers with epilepsy from Indian steel plants reported a lower frequency of seizures in higher hazard jobs than in lower hazard jobs[21]. How often and how completely selection and disease control mitigate injury risks at work require further study, however, especially as risks may sometimes be importantly elevated, and the very few reports of limited methodological quality that have explored injury risk in workplace settings.

Diabetes mellitus

The prevalence of diabetes mellitus is increasing worldwide[22, 23]. The global burden across all age-bands, which was put at 2.8% in 2000, is expected to rise to 4.4% by 2030[24]. Underlying this rise is an increase in risk factors for the disease, including obesity[25], physical inactivity, aging and the modern lifestyle[24]. In consequence, diabetes is becoming more common in the workplace, particularly as the prevalence of type II diabetes increases with age and individuals are increasingly working to older ages.

Hand in hand the complications of diabetes are becoming more frequent[26]. Some health effects have the potential to cause sudden incapacity (e.g. heart disease, stroke), or impair consciousness, concentration, and judgement (e.g. hypoglycaemia), vision (e.g. retinopathy, cataract), sensory perception and lower limb function (e.g. neuropathy, ulceration, peripheral vascular disease, amputation). Therapies used to treat diabetes (e.g. insulin, various oral drug treatments) may also cause low blood sugar and temporary incapacity if used incorrectly. However, comparatively little is known about whether diabetes and its treatments increase the risk of occupational injury.

Evidence comes principally from just three studies. In the large National Health Interview Survey, a nationwide Census Bureau multi-stage probability survey of US households, a 1 in 6 sample of 18-65 year old workers (other than farmers) were asked about injury in the past year that caused a residual limitation at the time of interview. Among 76,000 respondents, the odds of injury were raised 1.47-fold for those with self-reported diabetes relative to other respondents, although differences were not statistically significant at the 5% level[14].

Similarly, in a case-control study nested within the membership of the Group Health Co-operative of Puget Sound, Washington State, and which took as the outcome hospital attendance for a work-related acute traumatic injury with costs billed to an employer, being dispensed hypoglycaemic medication in the prior 30 days was associated with an OR of 1.4 in men and 1.3 in women, neither finding being statistically significant[4]. Finally, in a case-control study of elderly Canadian farmers from Alberta, the risk for hospital attendance with an agriculture-related injury was inconsistently related to prescribed diabetic medication, being non-significantly higher if dispensed more than 6 months beforehand but lower if within the last 6 months[3]. This small evidence base is inconclusive.

As with epilepsy, data on the risk of RTAs from diabetes are more plentiful, especially in relation to elderly non-vocational drivers. McGwin *et al* found no association between diabetes and an at-fault crash in the USA (OR 1.1) and no association with treatment modality or with the eye complication of retinopathy[27]. A Danish cohort study followed 7,599 insured diabetic members for three years but found a lower risk of accidents (0.7 per 1,000 person-years) relative to two control groups (4.5 per 1,000 and 5.5 per 1,000 person-years respectively)[28]. A second historical cohort study combined information from the Devon and Cornwall Constabulary database on road traffic collisions with the district wide retinal screening database, to provide an anonymized matched database of road traffic collisions in the diabetic population. This also found a lower annual accident rate among diabetics and no relation to use of insulin[29]. And a smaller study, based in the outpatient clinics of a hospital in Belfast, reported that drivers treated with insulin had no more RTAs than non-diabetic subjects[30]. However, a national study from Norway, linking databases on drug prescriptions, RTAs and deaths, indicated that accident rates were raised 1.4-fold among users of insulin and 1.2-fold among drivers on oral glucose-lowering agents[31]; similarly, a large population-based retrospective study from the USA found that 'standardised mishap' ratios (RRs) were raised 1.3-fold for subjects with diabetes[32]. Thus, findings on the risk of (non-vocational) RTAs in diabetics have been mixed, differences between the studies perhaps reflecting the play of chance and the tendency of the least fit, to some degree, to withdraw from or curtail the amount of their driving. On balance, the case for restricting driving in diabetics as a whole does not look to be strongly supported – another caution against applying blanket restrictions to workers with diabetes (which may not in any case be sustainable under the Equality Act 2010). Further data specific to the workplace are needed however.

Mental health problems

Many common mental health problems impair judgement, alertness and vigilance. Similarly, certain classes of commonly prescribed medical drugs often, but not exclusively, used in a mental health context, have psychotropic effects, with the potential to cause drowsiness and undermine performance and concentration. In theory, such illnesses and such treatments could increase the likelihood of people making mistakes. Our previous systematic review identified 15 relevant reports in this area (mainly on depression) covering 11 studies populations[3, 33-46]. We also found nine investigations relating to common classes of treatments with psychotropic effects – namely anxiolytics, hypnotics, sedatives, antidepressants, antipsychotics and other psychotropic drugs[3,4,47-53]. With partial overlap, there were 17 separate studies, eight relating to rural communities and farmers in North America – see Tables 2 and 3.

Table 2: Mental ill-health and risks of occupational injury

First Author	Study Population	Definition of exposure(s)	Sub-category of injury	Nos. in analysis	Effect measure	Point estimate (95% CI)
Cross-sectional studies						
da Silva MC, 2006[33]	Rag pickers and non-rag pickers from poor neighbourhoods	Minor psychiatric disorder on SRQ-20 screening instrument	All	879	PR	1.4 (1.2 - 1.7)
Edlund MJ, 1989[34]	All recently diagnosed schizophrenic outpatients aged 21 - 64 from a hospital clinic; volunteer staff from a medical centre with no psychiatric history	Schizophrenia (DSM-III-R) for ≥1 year on consensus of two psychiatrists	All	93	OR	0.8 (0.1 - 4.7)
Frone MR, 1998[35]	16-19 year-old students with part-time jobs, recruited through advertising at colleges and high schools	CES-D 20 depression score	All	319	r with CES-D score = 0.20, adjusted r = 0.00	
Nakata A, 2006[36]	Workers from randomly selected small and medium scale manufacturing factories listed in a commercial directory	CES-D scale for depression (>15)	Accidents across all jobs	1489 (M)	OR	1.31 (1.01 - 1.71)
				721 (F)	OR	1.07 (0.69 - 1.66)
			Accidents in manufacturing/production	767 (M)	OR	1.55 (1.08 - 2.21)
				241 (F)	OR	1.29 (0.61 - 2.73)
Zwerling C, 1995,1996[37,38]	Multi-stage area probability sample of 51-61 year olds from the general population	Worst 30% on CES-D scale for depression	Injuries in non-farmers	6370	OR	1.47 (1.17 - 1.85)
			Injuries in agricultural workers	237	OR	3.05 (1.03 - 9.55)
Case-control studies						
Ghosh AK, 2004[39]	Male miners from 3 underground coalmines. Cases: randomly chosen from those with a work injury during 1996-2000. Controls: matched by job and mine from those with no injury	'Emotional instability' (worst 10%)	All	404	OR	2.33 (1.04 - 5.22)
Peele PB, 2005[40]	Cases: workers presenting with a work-related injury to an occupational health clinic in past 72 hours. Controls: other attendees free from injury in the past 12 months	PHQ-9 depression score: Depression present (Yes vs No)	All	79 (F)	OR	3.36 (1.03 - 10.98)
				182 (M)	OR	1.42 (0.69 - 2.92)
Sprince NL, 2002,2003[41-44]	Random sample from a private pesticide applicators' register	Doctor-diagnosed depression	All	898	OR	1.82 (1.06 - 3.13)
			Injury from machinery	674	OR	1.79 (0.93 - 3.43)
			Injury from livestock	454	OR	1.41 (0.63 - 3.16)
			Fall-related injury	552	OR	2.37 (1.04 - 5.41)
		High depression score on 11 item CES-D (top 10%)	All	892	OR	1.65 (1.06 - 2.56)
			Injury from farming	670	OR	1.52 (0.88 - 2.63)
			Injury from livestock	453	OR	1.87 (0.97 - 3.62)
			Fall-related injury	552	OR	2.71 (1.43 - 5.13)
Voaklander DC, 2006[3]	Male farmers aged ≥66 years from Alberta. Cases: attending a hospital over a 3-year period. Controls: a	Physician-diagnosed neurotic disorder (ICD 300-309)	All	1692	OR	1.07 (0.59 - 1.91)

First Author	Study Population	Definition of exposure(s)	Sub-category of injury	Nos. in analysis	Effect measure	Point estimate (95% CI)
	random selection of farmers receiving fuel tax rebates in 1998-9					
Cohort studies						
Park H, 2001[45]	Principal farm operators from ref 16 who agreed to be mailed a follow-up questionnaire	CES-D score ≥16	All	290	OR	3.22 (1.04 - 9.99)
Zwerling C, 1998[46]	Multi-stage area probability sample of employed Americans, aged 51-61 years (excluding farmers), followed up in 1992-4 (Health & Retirement Study)	Worst 30% on CES-D depression score	All	4883	OR	1.37 (1.05 - 1.77)

a - age; s - sex; l - location; t - time period; o - occupation/job demands; y - years of experience in job; w - weekly working hours; al - alcohol consumption; OR = odds ratio; PR = prevalence ratio; r = Pearson correlation coefficient; M = male; F = female

Table 3: Medication and risks of occupational injury

First Author		Definition of exposure(s)	Sub-category of injury	Nos. in analysis	Effect measure	Point estimate (95% CI)
ANXIOLYTICS, HYPNOTICS, SEDATIVES						
Cross-sectional studies						
Proctor RC, 1981[47]	Employees of 3 large furniture producers s	Diazepam in prior 6 months vs. none	All	620	Mean no. of accidents (SD) 0.12 (0.40) vs 0.11 (0.34), P>0.05	
Wadsworth EJK, 2003[48]	General population sample from electoral registers	Sleeping pills in last 14 days	Injuries requiring medical care	1535	OR	2.82 (0.84 - 9.44)
			Injuries not requiring medical care	1541	OR	2.18 (0.79 - 6.02)
Case-control studies						
Chau N, 2004[49]	Men who worked for ≥5 years in the construction industry and had ≥1 work injury with sick leave & seen an occupational physician	Regular consumption of sleeping pills	All	1760	OR	4.7 (2.0 - 12.7)
Gilmore TM, 1996[4]	Cases: Members of the Group Health Co-operative of Puget Sound, Washington State, aged ≥18 & seen in hospital in 1992-3 for work-related injury. Controls: 2 subjects/case, randomly chosen from members free of injury in prior 90 days	Sedative hypnotics in prior 30 days	All	5931 (M)	OR	0.8 (0.4 - 1.5)
			All	4251 (F)	OR	1.5 (0.9 - 2.3)
Moll van Charante AW, 1990[50]	Cases: Male manual shipyard workers injured in 1984-6. Controls: matched by age and sex, and chosen from the 1988 payroll	Self-reported use of tranquillisers	All	512	OR	1.4 (0.4 - 4.4)
Montastruc JL, 1992[51]	Service industry workers attending occupational health clinics in 1989-90. Cases: had an industrial injury; controls: next 2 willing attendees	Benzodiazepines in prior 7 days	All	662 (M)	OR	0.7 (0.3 - 1.4)
			All	328 (F)	OR	1.1 (0.6 - 2.2)
Pickett W, 1996[52]	Farm operators followed from an earlier cross-sectional survey. Cases: farm injury, controls: no injury.	Tranquilizers/sleeping pills in prior 30 days	All	675	OR	0.4 (0.0 - 1.9)

First Author		Definition of exposure(s)	Sub-category of injury	Nos. in analysis	Effect measure	Point estimate (95% CI)	
Voaklander DC, 2006[3]	Cases: Male farmers aged ≥66 years attending a hospital in Alberta over a 3-year period. Controls: a random selection of farmers receiving fuel tax rebates in 1998-9	Anxiolytics, sedatives, or hypnotics in prior:					
		0 - 30 days	All	1692	OR	3.01	(1.39 - 6.52)
		31 - 90 days				0.83	(0.31 - 2.20)
		91 - 180 days				0.49	(0.14 - 1.75)
		>180 days				0.34	(0.10 - 1.16)
ANTIDEPRESSANTS							
Cross-sectional studies							
Wadsworth EJK 2003[48]	See above	Antidepressants in last 14 days	Injuries requiring medical attention	1535	OR	1.91	(0.71 - 5.11)
			Injuries not requiring medical attention	1541	OR	1.16	(0.47 - 2.87)
Case-control studies							
Gilmore TM, 1996[4]	See above	Antidepressants in prior 30 days	All	5931 (M)	OR	1.2	(0.7 - 2.1)
			All	4251 (F)	OR	1.2	(0.9 - 1.7)
Pickett W, 1996[52]	See above	Antidepressants in prior 30 days	All	675	OR	0	(0.0 - 1.3)
ANTIPSYCHOTICS							
Case-control studies							
Gilmore TM, 1996[4]	See above	Antipsychotics in prior 30 days	All	5931 (M)	OR	0.4	(0.1 - 1.8)
			All	4251 (F)	OR	0.6	(0.3 - 1.4)
PSYCHOTROPIC DRUGS (UNSPECIFIED)							
Cross-sectional studies							
Bhattacherjee A, 2003[53]	Subjects aged ≥15 years from randomly selected households with telephones in a defined region	Regular psychotropic drug use	All	2562	OR	1.54	(1.16 - 2.05)
Proctor RC, 1981[47]	See above	Psychoactive medication, past 6 months (vs. none)	All	648	Mean no of accidents (SD) 0.16 (0.41) vs 0.11 (0.34), P>0.05		
		0 - 30 days	All	1692	OR	1.56	(0.80 - 3.03)
		31 - 90 days				2.40	(1.43 - 4.03)
		91 - 180 days				0.95	(0.51 - 1.84)
		>180 days				1.67	(1.00 - 2.81)

a - age; s - sex; l - location; t - time period; o - occupation/job demands; y - years of experience in job; w - weekly working hours; al - alcohol consumption; M = male; F = female; OR = odds ratio; SD = standard deviation

Results were mixed. In many studies lower confidence limits exceeded one (i.e. significantly increased risks were observed) and several studies indicated ORs >1.5, or even higher in certain subgroups. However, we classed a majority of the studies as prone to inflationary bias (a tendency to generate overestimates of risk, as described above). Larger studies involving a mental health diagnosis suggested only modest increases in risk, but there was a spectrum such that ORs in three high quality studies ranged from 1.37 to 3.22[41-44,45,46]. Self-report of doctor-diagnosed depression carried an OR of 1.82 (P<0.05) for all injuries in a case-control study of farmers by Sprince *et al*[42] and an OR of 2.37 (P<0.05) for fall-related injuries in the same study group[44]; but an OR of 1.07 was found in a second case-control study that linked records of hospital attendance for injury with prescribed medication for ICD-defined neurotic disorder[3]. Only one small study of limited quality was found on schizophrenia[34]. On balance, we assessed the evidence as favouring a higher risk of injury in workers with emotional problems, although not firmly establishing this to be so.

In relation to psychotropic medication, Voaklander *et al*[3] reported that prescription of anxiolytics, sedatives, or hypnotics in the preceding 30 days was associated with a three-fold increase in odds of hospital attendance with work-related injury; but in a study of similar design[4], ORs were much lower (0.8 in men and 1.5 in women). Two other studies favoured a more than doubling of risk from medication[48,49] although both had the potential for inflationary bias through reverse causation – in Wadsworth *et al*[48] for example, the taking of sleeping pills related to the 14 days prior to questioning, whereas injuries might have occurred up to a year beforehand. The study by Gilmore *et al*[4] found little evidence of elevated risks in those taking anti-depressants, antipsychotics or narcotics; and two other studies of lower quality found limited (OR 1.5)[53] or no effect[47] from psychoactive medication.

A further cohort study (the Keokuk County Rural Health Study from Iowa) has since added to the evidence that depression (diagnosed using the CES-D scale) is associated with a moderately elevated risk of unintentional injury – 41% increased, after allowing for medication[54]; but the evidence base remains fairly sparse, as reported by Cherry *et al* in 2012[55].

Sensory impairments and problems of balance

About 2.5% of the UK population have some degree of visual impairment that is not correctable by refraction, of whom two-thirds are severe enough to qualify for registration as 'severely sight impaired' (blind) or 'sight impaired' (partially sighted)[56]. In 2006, over 364,000 people were so registered, while up to 2 million people were living with some degree of visual impairment[57]. The vast majority were elderly, but in England and Wales some 80,000 people of working age have visual impairment and over 4,800 under 65-year olds hold a registration[58].

Many common eye diseases increase sharply with age[58]. Thus, the current trend to work on beyond the traditional retirement age, when allied with increasingly stringent age and disability discrimination laws, may result in more visually impaired workers in modern workplaces. A further aggravating factor is that some major risk factors for visual impairment, such as diabetes, are on the rise[58].

Visual impairment can increase the risk of RTAs, a concern reflected in tighter licensing and review arrangements for older drivers[59], while older people with visual impairment have more falls in the home[60]. Risk of occupational injury and poor sight have been the subject of several previous investigations[3,13,14,37,38, 41-46,49,50,61,62] (Table 4): self-reported visual impairment[14,46,61,62], poor vision with glasses[37,38,62], interviewer-assessed blindness[14] and, to a lesser extent, medically diagnosed eye disorders[3,62], have all been linked with moderately greater risks of injury.

Hearing impairment is likewise common in the population at large, and of increasing importance to an ageing workforce. In one national survey, 2% of adults of working age had severe difficulty in hearing[63], and in another, 8% of 51–60 year-olds had bilateral hearing impairment of 35–45 dB HL and 5% had a greater deficit[64]. Impaired hearing and deafness can result in relative isolation from noisy hazards in the work environment, a failure to recognise auditory warning signals, and perhaps more chance of missing or misunderstanding important safety instructions. In keeping with this, most of 16 recently reviewed studies of hearing impairment and workplace injury[13,14,37,38,41-46,49,50,61, 65-71] reported moderately positive associations (ORs>1.5) with risks sometimes more than doubled. Table 4 provides details of these reports.

However, as has been pointed out above, most reports on sensory impairment and workplace injury risk have relied on self-reports, both of injury and of health impairment (with the possibility that those with an injury record were more likely to notice and report sensory limitations than people without accidents – reporting bias), and have been retrospective in design (with the possibility that some people's sensory impairments were discovered consequent on their injury – bias from reverse causation). In relatively few studies have injury and health impairment been independently established through records or third party information[3,49,71], and few studies have been truly prospective[45,46,70] or had accurate event timing data[3,71], to ensure that the medical diagnosis preceded the accident. In principle, then, injury risks could have been over-estimated. Finally, problems of hearing are sometimes linked with disorders of balance and symptoms of dizziness; but even less is known about such symptoms and risks of occupational injury[72]. This is a major gap in information.

Summary

In overview, the previous research literature suggests that chronic health conditions and their treatments, including impaired hearing and vision, neurotic illness, diabetes, epilepsy and sedating medication may raise the risks of occupational injury moderately (ORs 1.5 –2.0); but there are many major deficiencies in the evidence base, in quantity, in quality, and in depth.

This last aspect can be further illustrated by way of example: although studies were found on injury risk and poor vision or mental health, none of the former estimated risks were by specific types of eye disease and none of the latter extended to major psychiatric illnesses such as bipolar disorder or psychosis; also, few studies distinguished risks by sub-category of external cause (e.g. fall, injury from machinery) or by nature of injury (e.g. fracture, burn), although priority for action will certainly depend on the severity and type of injury.

Table 4: Features of the studies included in the review (adapted from reference 2 and updated to July 2013)

First author, (year) location	Design	Study populations	Sources of information on exposure (E) and inquiry (I)	Definition of inquiry	Definition of exposure(s)	Injury type	OR (95% CI)	Quality rating
Browning SR, (1998)[61] USA	X	Male farmers aged ≥55 years from a 2-stage cluster sample of farms in Kentucky	E: Self-report at telephone interview I: Same	Injury doing farm work or chores in past 12 months	H: Self-reported hearing difficulty	All	1.59 (0.95-2.670	++
					V: Self-reported vision difficulty	All	1.42 (0.76-2.63)	
Chau N, (2004)[65] France	X	Men who worked for ≥5 years in the construction industry and had ≥1 occupational injury with sick leave & had seen an occupational physician	E: Physicians' examination (criteria unstated) I: Yearly medical examination or return to work interview. Physician completed questionnaire.	Falls, struck by moving object, handling/carrying accidents, accident with hand tool, machinery accident	H: Physician-determined hearing disorder	Fall, lower level Machinery Moving object Hospitalised Sick leave >60 days	1.43 (0.89 - 2.27) 1.10 (0.60 - 1.99) 2.02 (1.08 - 3.75) 1.69 (1.12 - 2.55) 1.65 (1.10 - 2.49)	+++
Hwang SA, (2001)[66] USA	X	Adult farmers and farm residents on 552 farms in New York state	E: Self-report at telephone interview I: Same	≥1 severe farm injury (sought medical care or died or missed >0.5 work days) in past 6-12 months	H: At least 'a little trouble hearing in either or both ears'	All	1.86 (1.22 – 2.83)	+
Lam LT, (2008)[62] Australia	X	Adults (≥15 years) from the general population throughout Australia	E: Self-report at interview I: Same	Event resulting in a work-related injury in the previous 4 weeks (treated or untreated)	V: (i) Any vision problem, (ii) macular degeneration	All treated	(i) 1.57 (1.11 - 2.24) (ii) 3.52 (1.64 - 7.55)	++
Lewis MQ, (1998)[13] USA	X	Principal farm operators, chosen from an agricultural database in Iowa	E: Self-completed questionnaire I: Same	Injury for which medical attention or treatment received from a doctor/medical assistant; or which led to reduced activities for ≥0.5 days, or loss of consciousness in past 12 months	H: Self-reported hearing problem (no details)	All	2.04 (0.90 – 4.65)*	+(+)
					V: Self-reported problem of vision	All	0.63 (0.10 – 4.06)*	
Xiang H, (1999)[67] USA	X	Male farmers aged ≥ 60 years from Colorado, drawn from an agricultural statistics database	E: Telephone interview I: Same	Any farm work-related injury in past 12 months requiring medical treatment other than first aid, being unable to do usual work activities, having lost consciousness or needing transfer to another job.	H: Self-reported hearing loss	All	1.88 (0.55 – 6.41)*	++
Zwerling C, (1995),[37] (1996),[38] USA	X	Multi-stage area probability sample of 51-61 year olds from the general population	E: Self-report at interview I: Same	Injury at work requiring medical attention or treatment or interfering with work	H: Self-reported poor or fair hearing with hearing aid	Non-farm Farm	1.60 (1.11 – 2.30) 0.29 (0.01 – 2.22)	++

First author, (year) location	Design	Study populations	Sources of information on exposure (E) and inquiry (I)	Definition of inquiry	Definition of exposure(s)	Injury type	OR (95% CI)	Quality rating
		(Health & Retirement Study). Separate papers for agricultural workers and other occupations		activities, past 12 months	V: Self-reported poor or fair vision with glasses	Non-farm Farm	1.53 (1.11 – 2.09) 3.08 (0.41 -19.19)	
Zwerling C, (1997)[14] USA	X	1 in 6 sample of 18-65 year old workers (other than farmers) participating in the National Health Interview Survey (a nationwide Census Bureau multi-stage probability survey of US households)	E: Self-report at interview I: Same	Injury in the past year that caused a residual limitation at time of interview	H: (i) Deaf as judged by interviewer, (ii) Self-reported poor or fair hearing with hearing aid	All	i) 2.19 (1.17 – 4.12) ii) 1.55 (1.29 – 1.87)	+++
					V: (i) Blind, as judged by interviewer, (ii) Self-reported visual impairment	All	i) 3.21 (1.32 – 7.85) ii) 1.37 (0.87 -2.17)	
Chau N,[49] (2004) France	CC	Male workers employed ≥5 years in the construction industry. Cases: as defined in ref 21. Controls: men who had not had ≥1 occupational injury with sick leave, matched on occupation	E: Mainly by physician's examination (criteria unstated) I: Yearly medical examination or return to work interview. Physician completed questionnaire	Occupational injury with sick leave and consultation with an occupational physician (routinely or in relation to the injury)	H: Physician-determined hearing disorder	All	1.30 (0.94 – 1.80)	
					V: Physician-determined poorly corrected vision disorder	All	0.9 (0.7 – 1.2)	+++
Crawford MJ,[68] (1998) USA	CC	Cash-grain farmers (principal operators) from a roster held by an agricultural statistics service, Ohio	E: Self-completed questionnaire I: Same	Agricultural injury which led to consultation with a doctor or medical assistant, or cut down usual activities for ≥0.5 days in past 12 months	H: Self-reported hearing in right ear 'not good'	All	1.90 (0.82 – 4.40)	++
Moll van Charante AW,[50] (1990) Netherlands	CC	Male manual shipyard workers. Cases: workers injured in 1984-6. Controls: matched by age and sex, and chosen from the 1988 payroll	E: Self-completed questionnaire I: Accident records	Injury recorded in the company's accident register	H: Hearing loss on PTA (vs. ≤20 dBHL and noise <82.5 dBA). (i) ≤20 dBHL noise >82.5 dBA (ii) > 20 dBHL, noise <82.5 dBA, (iii) >20 dBHL, noise >82.5 dBA, (iv) >20 dBHL overall	All	i) 1.83 (1.17 – 2.88) ii) 4.25 (2.14 – 8.47) iii) 1.80 (0.56 – 5.83) iv) 1.90 (1.64 – 2.21)	+++
					V: Wearing glasses	All	0.8 (0.6 – 1.2)	

First author, (year) location	Design	Study populations	Sources of information on exposure (E) and inquiry (I)	Definition of inquiry	Definition of exposure(s)	Injury type	OR (95% CI)	Quality rating
Sprince NL, (2002), (2003) USA[41-44]	CC	Random sample from a private pesticide applicators' register	E: Interviewer-administered questionnaire I: Same	Farmer injured seriously enough to get medical advice or treatment in past 12 months (all injuries, fall-related injuries, injuries related to machinery or large livestock)	H: (i) Wearing hearing aid, (ii) Self-reported hearing poor/fair vs. better, (iii) Difficulty hearing normal conversation with hearing aid	All	i) 2.36 (1.07 – 5.20) ii) 1.05 (0.76 – 1.46) iii) 1.42 (1.05 – 1.92)	+++
					V: (i) Wearing glasses, (ii) Self-reported vision poor/fair vs. better	All	i) 0.88 (0.66 – 1.18) ii) 0.67 (0.37 – 1.21)	
Viljoen DA, (2006)[69] Australia	CC	Male underground miners employed throughout 1994-2004 and who had had PTA. Cases - sustained an injury; Controls - did not	E: PTA in routine medical assessment closest in date to the accident I: Not stated	Injury caused by moving or falling objects	H: aural high tone hearing loss on PTA (vs. none): (i) <10%, (ii) 10-19%, (iii) 20-54%	All	i) 1.50 (0.85 – 2.64) ii) 0.82 (0.32 – 2.12) iii) 2.28 (0.84 – 6.22)	++
Voaklander DC, (2006)[3] Canada	CC	Male farmers aged ≥66 years from Alberta. Cases: attending a hospital over a 3-year period. Controls: a random selection of farmers receiving fuel tax rebates in 1998-9	E: Register of prescriptions I: Hospital billing records	Hospital attendance for an injury related to agricultural activity	V: Medically diagnosed eye disorder (ICD 360-379)	All	i) 1.23 (0.83 – 1.83)	++++
Choi SW,[70] (2005) USA	C	Principal farm operators from Iowa, identified from a random sample of rural residents. Analysis based on farmers receiving injury prevention interventions	E: Regular telephone interviews and diary records I: Same	Sudden unexpected unintentional incident related to farm work with an external cause leading to tissue damage, poisoning, loss of consciousness or other bodily injury (within prior 6-12 months)	H: PTA (i) >25 dBHL, both ears, (ii) >25 dBHL, worse ear, (iii) >25 dBHL, better ear, (iv) >5 dBHL hearing difference, worse vs. better ear, (v) Self-reported hearing fair/poor	All	i) 1.44 (0.94 – 2.23) ii) 1.35 (0.87 – 2.10) iii) 1.62 (1.03 – 2.55) iv) 1.67 (1.14 – 2.44) v) 1.96 (1.26 – 3.05)	++
Park H,[45] (2001) USA	C	Principal farm operators from ref 9 who agreed to be mailed a follow-up questionnaire	E: Self-report at baseline I: Self-completed postal questionnaire	Injury for which medical attention or treatment received from a doctor or medical assessor, or which led to reduced usual activities for >0.5 days or loss of consciousness in past 12 months	H: Self-reported hearing problem V: Self-reported vision problem	All	1.21 (0.55 – 2.65) 0 (0 – 1.56)	+++

First author, (year) location	Design	Study populations	Sources of information on exposure (E) and inquiry (I)	Definition of inquiry	Definition of exposure(s)	Injury type	OR (95% CI)	Quality rating
Zwerling C,[46] (1998) USA	C	Multi-stage area probability sample of employed Americans, aged 51-61 years (excluding farmers), followed up in 1992-4 (Health & Retirement Study)	E: Self-report at baseline I: Self-report at follow-up interview	Injury at work that required special medical attention or treatment or interfered with work activities (between baseline and follow-up interviews)	H: Self-reported poor hearing V: Self-reported poor sight	All	1.35 (0.95 – 1.93) 1.45 (0.94 - 2.22)	+++
Girard SA, (2009)[71] Canada	RC	Cohort of 52,982 men aged 16-64 years with long-standing exposure to noise	E: Audiometry (betwen1983 and 1996) I: Compensation database	Work-related accident reported to a worker's compensation board (over the 5 years after the most recent audiogram)	H: Hearing loss (i) mild, (Ii) moderate, (iii) severe vs. normal hearing	All	1 accident: (i) 1.13 (1.03 – 1.23) (ii) 1.37 (1.24 – 1.51) (iii) 1.40 (1.27 – 1.54) ≥4 accidents: (i) 1.53 (1.18-1.50) (ii) 1.78 (1.42 – 2.22) (iii) 2.30 (1.86-2.85)	++

OR= odds ratio; X = cross-sectional, CC = case-control, C = cohort, RC = retrospective cohort, PTA = pure tone audiometry, HL = hearing loss; H = hearing; V = vision

Contrasts have been drawn above with the larger literature on health and RTAs. Studies of RTAs also offer the extra depth of information that occupational studies lack. For example, regarding poor vision and RTAs, several studies covered specific aspects of visual performance (visual acuity, field of vision, binocularity, contrast sensitivity) and particular eye diseases (cataracts, glaucoma, macular degeneration): reduced field of vision was consistently associated with accident risk, with RRs ranging from 1.9 to 22.0 for a >40% reduction. Fourteen primary studies on epilepsy and RTAs were found, including seven of cohort design, and with estimates of risk by presence or absence of reliable auras, time since last seizure, seizure pattern and extent; by contrast no occupationally related reports covered common health problems in comparable depth.

To address some of these shortcomings, and generally to add to estimates of risk, we undertook a nested case-control analysis based on the injury experience of a large cohort of the general population over an extended period.

Methods

The Clinical Practice Research Datalink

Since 1987 the General Practice Research Database (GPRD) – recently renamed *the Clinical Practice Research Datalink* (CPRD) – has provided a log of all medical consultation episodes associated with significant events, illnesses, or medical activity (diagnosis, referral, prescription, etc.) among patients from participating general practices[73]. Initially established to facilitate post-marketing surveillance of drug safety, this database is owned by the Medicines and Healthcare Products Regulatory Agency (MHRA) of the Department of Health and maintained as a research resource. Data from participating practices are screened for completeness (>97%) and validity (high for several outcomes in external audits). Records are held on 5 million patients from about 590 general practices throughout the UK (6% of residents in England and Wales) and have contributed to much fundamental medical research.

Cases and controls

CPRD consultation episodes are classified using Read diagnostic codes. Typically, GPs record that a workplace accident has occurred but omit further detail (codes: L5250W “accident at work”, T920 “accident on duty”). However, a useful number of events are distinguishable as involving machinery or tools likely only to be used during work (e.g. TG31400 “Accident caused by forging machine”, TG37500 “Accident caused by transmission pulley”), or plant or off-road vehicles at work (e.g. T605.00 “Accident involving industrial self-propelled truck”, TG31100 “Accident caused by hay derrick”), or a work location (e.g. T736.00, “Place of accident or poisoning, industrial yard”). In a scoping exercise, prior to this study, we identified 479 such codes and two of us classified them independently, as “definitely” or “possibly” occupational, with disagreements resolved by consensus. Appendix 1 lists the codes in full.

The MHRA then supplied us with an anonymised dataset containing the entire primary care medical records of 9,612 cohort members comprising (1) 1,602 patients who had consulted their general practice or attended hospital with a qualifying injury code between 1st January 1987 and December 31st 2009 (cases), and (2) 8,010 patients with no workplace injury (controls). A pre-defined algorithm had been applied to match the controls individually to cases (five per case) by sex, age (nearest year of birth), general practice, and being in the database at the time of the matched case’s injury consultation. Data were obtained under MRC access licence. Governance arrangements of the MHRA include ethical approval for bone fide uses, licensed after review by an independent data monitoring committee of the MHRA, the ISAC (approval reference 08_104R).

In the analysis that follows, cases and controls were compared in terms of their exposures (general practice consultations with health problems and prescribed treatments) and time-changing covariates (e.g. age, history of problem drinking) *before* the date of injury consultation of the case, called here their ‘index date’. For cases this date was simply defined; for controls, the date taken was that of the injury consultation in their matched case. (This expedient bypasses the potential for “reverse causation” mentioned above – e.g. an association between tranquillizers and an injury arising after and in consequence of the event, rather than before it, establishing the timings of events by means of independent date records.)

Subjects who were >65 years on the index date (n=1,476) were excluded, as were 69 controls surplus to the matching algorithm, having already served as a control to another case that had been matched to more than one case (n=69); and 12 cases and their 55 still matched controls because investigation of the circumstances of injury led to it being recoded non-occupational where the underlying injury was found to be non-accidental (e.g. “assault at work”). Figure 1 shows the exclusions applied. Analysis was finally based on 1,348 cases and 6,652 controls, 8,000 subjects in all, of whom 5,915 (74% were male). Table 5 sets out the age profile of the subjects, who had a mean age of 39.9 (SD 12.7) years; Table 6 details their geographical residency, as judged by the location of their general practice.

Injury circumstances

Among eligible cases, 85% were considered to involve ‘definite’ occupational injury and 15% to be ‘possible’. Injuries were classified by their circumstances (e.g. involving a power tool or machine, chemical burn) and effect (e.g. sprain, fracture, amputation). Table 7 provides details. Injuries frequently involved power tools, machinery, burns and poisonings; and quite often resulted in sprains, soft tissue injuries and lacerations or open wounds. However, information on the circumstance and nature of the injury was commonly missing.

Additionally, as an index of severity, we noted whether they attended hospital in the seven days following their injury consultation or were issued with doctor’s medical certificate (Med 3 or Med 5) within eight days of the injury consultation (self-certification is possible for the first 7 days of work absence). A total of 159 cases (12%) attended hospital, while 230 cases (17%) were issued with a medical certificate.

Coding of exposures

Exposures of interest comprised consultations with certain health problems and/or prescription of certain treatments before the index date. The CPRD contains separate databases for (i) medical consultations (with diagnoses coded by the Read system), (ii) drug treatment (coded according to British National Formulary (BNF) headings), and (iii) clinical activities, such as measuring a drug concentration in blood (with so-called ‘entity’ codes). These databases can be linked at the individual level using a patient’s unique identifying code. Completeness of recording in each database is believed to be high; but to ensure that all subjects with health problems of interest were correctly identified we conducted searches in each database and cross-tabulated findings between databases within individuals. Codes in each were identified by iterative searches of a ‘look-up’ CD-ROM of codes supplied by MHRA. Decisions about which codes to include were taken by two of us independently, with differences resolved by consensual discussion. They were taken blinded to information on the case-control status of individuals. Separate coding exercises were conducted for each medical problem and treatment of interest, as set out below.

1. Epilepsy: After resolving any differences, we distinguished 139 Read terms in the consultations database which indicated a “definite” diagnosis of epilepsy, and five which represented “possible” epilepsy. In the treatment database, we found codes for 89 therapies specific to epilepsy and 51 that were used for epilepsy

Figure 1: Exclusions and numbers finally eligible for analysis

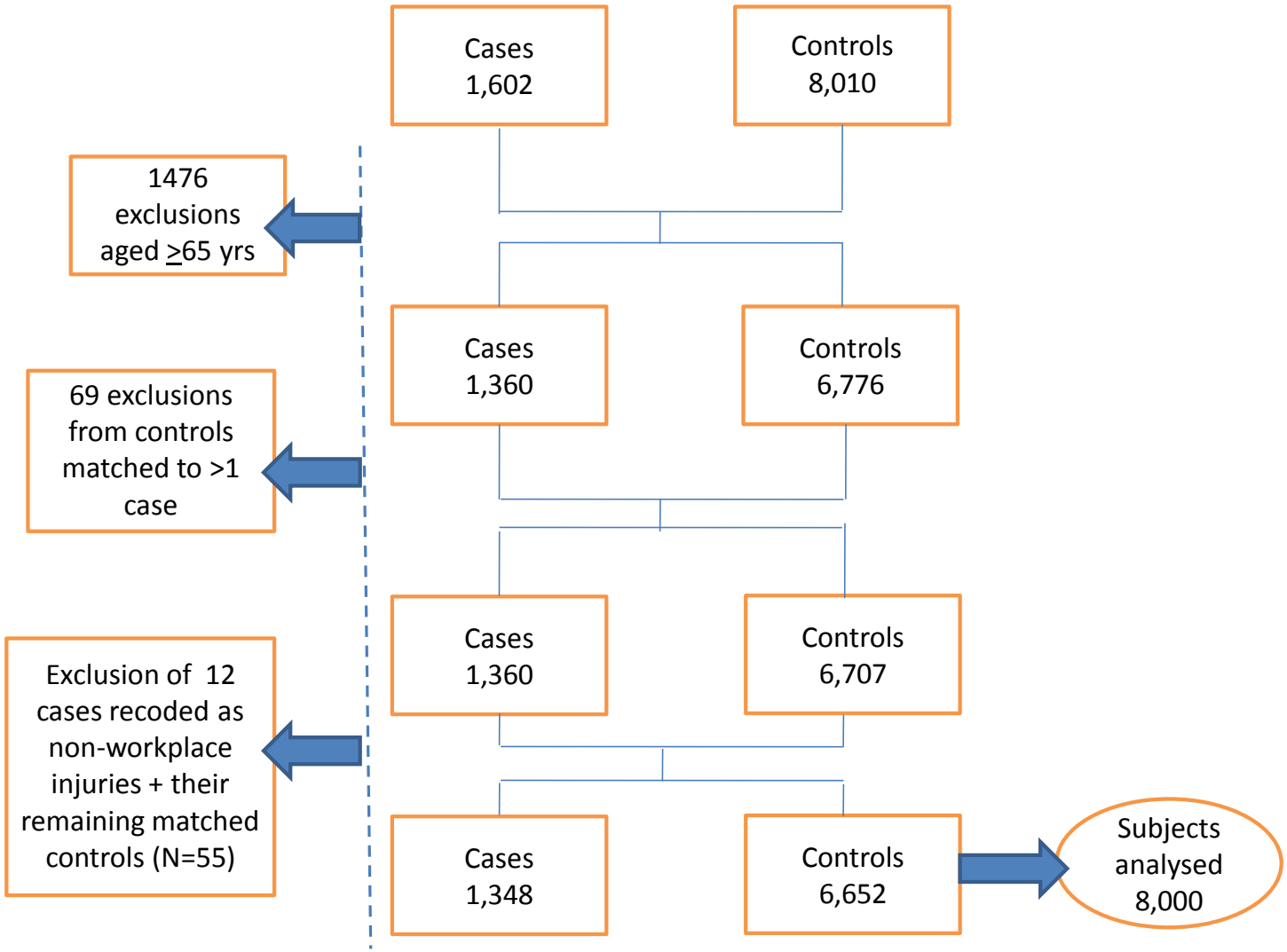

Table 5: Age distribution of the finally eligible subjects

Age band (years)	N (%) of subjects
<20	307 (3.8)
20-29	1705 (21.3)
30-39	1940 (24.3)
40-49	1844 (23.1)
50-59	1580 (19.8)
60-64	624 (7.8)
Total	*8000*

Table 6: Residency of the finally eligible subjects

Region of practice	N (%)
North East	153 (1.9)
North West	1629 (20.4)
Yorkshire & The Humber	787 (9.8)
East Midlands	453 (5.7)
West Midlands	455 (5.7)
East Of England	678 (8.5)
South West	685 (8.6)
South Central	1310 (16.4)
London	336 (4.2)
South East Coast	419 (5.2)
Northern Ireland	356 (4.5)
Scotland	369 (4.6)
Wales	370 (4.6)
Total	*8000*

Table 7: Nature and circumstances of the injuries in cases

Injury	No. of cases	Causal agent/type of event	No. of cases
Sprains or soft tissue injuries	280	Accidents involving a power tool or machinery	192
Haematoma, contusions or crush injuries	78	Accidents involving a non-powered tool or item of equipment	59
Lacerations or open wounds	123	Accidents involving a motor vehicle	56
Fractures	50	Chemical or other burns	154
		Chemical poisonings or inhalation injuries	146
Other (specified)	50	Other (specified)	59
Missing	805	Missing	683
All*	1386	All*	1349

**Totals exceed the number of cases (1348) as several subjects sustained >1 injury within the same episode and one had two external causes*

but also for other indications. In the third, we identified nine activities that all "definitely" related to epilepsy (e.g. measured blood level of phenytoin). Appendix 2 lists the relevant codes. Patients were classed as having epilepsy if before the index date they had: a Read code for "definite" epilepsy; *or* a Read code for "possible" epilepsy corroborated by a treatment specific to epilepsy or by an activity "definitely" indicating the disorder. When analysing risks by treatment at any time before, and within the 12 months before, the index date, we included medication that was not solely for epilepsy, provided the patient met our case definition for the disease.

The medical diagnosis database also provided details of the type of fit incurred (e.g. grand mal, petit mal, myoclonic seizures, temporal lobe, focal), its severity (status epilepticus), and age at onset (childhood vs. adulthood). In practice, however, numbers by diagnostic subcategory were small and did not merit distinction in the main analysis, other than to describe the sample. Similarly, the treatment database identified specific therapeutic agents, together with their formulations and doses (Appendix 3); but these were of value only in description, especially as combinations of therapy were commonplace.

2. Diabetes mellitus: For this analysis, we searched for 196 Read terms relating to diagnosis, 355 separate BNF formulary codes covering specific anti-diabetic treatments, and one code relating to a relevant medical test (glycosylated haemoglobin (HbAlc)). In the dataset, we found 108, 211 and one respectively of these codes *before* the index date relating to each injury consultation (Appendix 4) and used them to classify subjects as having diabetes or not and according to the nature of their treatment (Appendix 5). Patients with diabetes mellitus were sub-classified according to certain clinical features relating to the severity and management of their disease before the injury consultation date: (i) complications: eye involvement (e.g. proliferative retinopathy, cataract), neuropathy, foot ulceration, renal involvement, peripheral vascular disease – ever before the index date; (ii) treatments: on a blood sugar-lowering treatment (insulin or an oral hypoglycaemic agent) – ever and in the 12 months before the index date; (iii) poorly controlled diabetes: record of 'brittle' diabetes, diabetes with ketoacidosis, 'poor control', 'poor compliance' or 'unstable' disease (12 Read codes) – ever before the index date.

3. Mental health problems and psychotropic drug treatments: Diagnostic codes for psychiatric illness were supplied by the author of a Home Office report which had used CPRD data to investigate mental health problems[74,75] (with kind permission). The 1,328 supplied codes were originally grouped into six diagnostic categories: (a) neurosis, (b) psychoses, (c) paranoia, (d) schizophrenia, (e) personality disorders, and (f) other disorders (which includes ''insomnia not otherwise specified'', ''behaviour problems'', ''hallucinations'', ''hallucinations auditory'', ''behaviour antisocial'', and ''disorder behaviour''). For this analysis, the 416 codes featuring in study subjects (Appendix 6) were similarly aggregated, although category (c) had no subjects with the diagnosis and was later omitted. Subjects were coded as having one or more of these mental health problems at any time before the index date and at least 12 months before it.

Prescriptions with psychotropic or hypnotic effects were identified using BNF codes for hypnotics (*04010100*), anxiolytics (*04010200*), barbiturates (*04030100* or *04030200* or *04030300* or

04030400) and antidepressants (*04010300*). The list included sedative antihistamines and all the commonly prescribed categories of antidepressant as well as drugs sometimes used for other purposes (e.g. control of continence) but with similar potential to cause sedation. Appendix 7 lists these medicines. Subjects were coded according to whether they had been prescribed one of these drugs at any time before and during the 12 months before the index date.

4. Sensory impairments and problems of balance: For this analysis, we searched for codes relating to impairments of vision and hearing through an iterative process involving various wild card truncations. Specifically, we looked for terms relating to (i) visual loss, visual impairment, blindness, and low visual acuity; (ii) three common categories of eye disease according to Hospital Episode Statistics England – glaucoma, cataract and retinal involvement (e.g. retinopathy, retinal detachment, retinal vein thrombosis, optic neuritis, macular degeneration); (3) hearing loss, hearing impairment, hearing difficulty, deafness, and use of a hearing aid or appliance; (4) perforations of the ear drum; (5) non-acute otitis media; and (6) terms that might indicate impaired balance – vertigo, Meniere's disease, labyrinthine and vestibular disorders (Appendix 8). In all we found 93 codes relating to poor vision or blindness; 6, 12 and 27 each for glaucoma, cataract and retinal involvement; 90 codes for hearing loss or deafness; 11 for perforated ear drum; 32 for non-acute otitis media; and 49 for disorders of balance.

Other information

Covariates of interest included age, sex, and history of problem drinking, a potential confounder in relation to workplace accidents. For this last purpose, we conducted a wild-card search for codes relating to alcohol misuse (e.g. alcoholic hepatitis, alcohol dependence, cirrhosis), problem drinking (including its treatments), and reports of a high weekly intake (defined by NHS Choices as regularly drinking >50 units per week for men or >35 units per week for women[76]). By these criteria, each subject was coded as having, or not having, a drink problem before the index date.

Analysis

We assessed the association between injury consultation and prior medical disorders or treatments using conditional logistic regression, based upon matched sets with a variable number of controls per case. Findings were expressed as ORs and associated 95% CI. Analysis was adjusted for a history of problem drinking.

The time windows of exposure in analysis varied somewhat, but in general we explored the association of the diagnosis (or treatment) with occupational injury: *ever* before the index date; *within the 12 months before* the index date; and *more than 12 months before* the index date. The second of these options was aimed particularly at assessing risks from drug treatment, the effects of which should be less relevant after treatments have ceased, while the third offered a sensitivity analysis in which all possibility of reverse causation could be confidently excluded. Where numbers allowed (e.g. for diabetes), we further explored risks for subsets of cases with more severe disease (e.g. diabetes which was poorly controlled and perhaps more liable to incapacity).

Where risks were significantly elevated, we calculated the attributable fraction in the exposed using the standard formula (RR-1)/RR, where RR is the relative risk, and the population attributable fraction by the formula Pe*((RR-1)/RR), where Pe represents the proportion of exposed injury cases. These ratios can be interpreted as the potential *avoidable* fraction of injury consultations in the individual and the population respectively, under the assumption that the measured associations are causal.

Finally, in a sensitivity analysis, we explored associations according to the type of occupational injury and the external cause, and assessed risks in relation to 'severe' injuries, defined as those involving any of: fracture, traumatic amputation, or hospital attendance.

Results

Epilepsy

Among the 8,000 eligible subjects were 160 individuals (2%) classed as having epilepsy before the index date. Table 8 shows the length of their illness (from the date of first GP record of diagnosis to the date of the injury consultation): the median disease duration was 14.7 years (interquartile range 5.6 to 22.2 years). Table 9 shows the treatments commonly prescribed before the injury consultation; there was considerable overlap.

Table 10 provides risk estimates in relation to epilepsy and anti-epileptic treatment. Findings are presented (i) for any diagnosis or treatment before the index date for injury consultation; (ii) for diagnosis at least 12 months before the index date; and (iii) for treatments during the 12 months before that date. (The second of these analyses effectively excludes the possibility that diagnosis may accompany injury rather than precede it; the third evaluates risks in relation to current/recent treatments in case historic ones are too distant in time to be relevant). Risks overall were elevated by about 9%, although findings were not statistically significant at the 5% level. 95%CI were compatible both with the possibility of a 60% increase in risk and a reduction in risk of about 30%, reflecting limited power to assess the magnitude of small risks. Findings in the sensitivity analyses did not differ importantly.

In all, 29 people with epilepsy had sustained a workplace injury, six of these involving powered tools or machinery, seven comprising chemical poisonings or inhalation injuries and one relating to a fall. One of these involved an amputation, but other injuries were mild (e.g. sprains and contusions). Insofar as can be judged from the descriptors available, there was no evidence that any of these workplace injuries were a direct consequence of seizures and none of these individuals had consulted with their epilepsy within the 100 days before their injury consultation. Eight patients with epilepsy had a record of ever having had status epilepticus (a potentially life-threatening state of persistent seizure), and two of these had a workplace injury; risks relative to no history of epilepsy were elevated, but confidence intervals were very wide and the findings non-significant statistically (adjusted OR vs. never had epilepsy 1.67, 95%CI 0.34 to 8.26).

Table 8: Duration of epilepsy (years since first diagnosis before the index date) in 160 patients with epilepsy

Years	N	%
<1	4	2.5
1-5	31	19.4
6-9	19	11.9
10+	106	66.3

Table 9: Drug treatments before the index date in 160 patients with epilepsy

	N*	%
Carbamazepine	54	33.8
Sodium valproate	43	26.9
Phenytoin	34	21.3
Pregabalin	27	16.9
Other treatments	62	38.9

** In all, 107 (67%) of subjects had at least one of the treatments in the table; the total of treatments sums to >107, indicating that patients often had several of the treatments, either concurrently or sequentially*

Table 10: Relation between care for epilepsy and consulting with an occupational injury in primary care

(Timings relate to the index date for injury consultation in the cases)	**Cases (n=1348) N (%)**	**Controls (n=6652) N (%)**	**OR***	**95 % CI**	**P-value**
Never had epilepsy	1319 (97.8)	6518 (98.0)	1		
Ever had epilepsy	29 (2.2)	131 (2.0)	1.09	(0.73-1.64)	0.67
Ever treated for epilepsy	19 (1.4)	91 (1.4)	1.02	(0.62-1.68)	0.92
Diagnosed at least 12 months before	28 (2.1)	131 (2.0)	1.05	(0.70-1.59)	0.81
Treated in the 12 months before	14 (1.0)	75 (1.1)	0.91	(0.52-1.52)	0.76

** adjusted for indices of alcohol misuse*

Diabetes

Among the 8,000 eligible subjects were 199 individuals (2.5%) classed as diabetic before the index date. Table 11 shows the length of their illness (from the date of first GP record of diagnosis to the date of the injury consultation): the median disease duration was 4.1 years (interquartile range (IQR) 1.6 to 10.0 years).

Table 12 records the prevalence of complications, various diabetic treatments and of poor control in those individuals. Eye involvement (usually diabetic retinopathy) was common (39% of diabetics), as was treatment with insulin (43%); and around a quarter of diabetics had a history of 'poor' control before the index date, as judged by clinical history.

HbA1c, a blood test, offers an alternative measure of medium-term control, which patients with diabetes are encouraged to have, usually annually. Some 59% (117) of the 199 diabetics had such a test result within the 12 months preceding the index date, of which 84 (72%) were ≥7% (≥53 mmol/mol), a cut-point often taken to indicate suboptimal control. (An absent test result may arise because a test appointment was missed and carried into the following months, or sometimes because it was deemed unnecessary as disease was well-controlled – complication rates were actually lower in those who did not have an HbA1c result over the prior 12 months.)

Table 13 provides risk estimates in relation to diabetes, common diabetic treatments, various diabetic complications, and poor control (evidenced by selected medical codes and an unsatisfactory HbA1c result in the past 12 months). No overall association was found between consulting a GP with a workplace injury and being diagnosed with diabetes (OR 1.01); and risks were marginally lower in those taking a treatment that lowered blood sugar (OR 0.96), although marginally and non-significantly elevated (odds 12% higher) if on such treatment in the 12 months preceding the injury consultation. A statically non-significant *decrease* in risk (OR 0.72) was found in relation to diabetic eye involvement and poorly controlled diabetes (OR 0.52), but a statically non-significant increase for diabetics with complications involving sites other than the eye (OR 1.50) and a recent HbA1c value >7% (OR 1.35).

Table 11: Time since diagnosis (duration of disease) among the 199 subjects with diabetes mellitus

Duration of disease	N	%
<1 year	23	11.6
1-3 years	57	28.6
4-6 years	38	19.1
7-9 years	22	11.1
>=10 years	59	29.6
Total	*199*	*100.0*

Table 12: Complications and treatments among the 199 subjects with diabetes mellitus

	(Before the index date)	N	%
Complications	Eye involvement	77	38.7
	Neuropathy	20	10.1
	Foot ulceration	7	3.5
	Other foot involvement	1	0.5
	Peripheral vascular disease	4	2.0
	Renal involvement	9	4.5
Treatments	Insulin	86	43.2
	Oral hypoglycaemic agent but not insulin	75	37.7
	Never on insulin or an oral hypoglycaemic agent	38	19.1
Diabetic control	Poor control	52	26.1

Table 13: Relation between consulting with an occupational injury and diabetes mellitus, including its complications and treatments and indices of poorer control

Before the event date	Cases (n=1348) N (%)	Controls (n=6652) N (%)	OR	95 % CI	P-value
Diabetes					
Never	1314 (97.5)	6487 (97.5)	1	(reference)	
Yes	34 (2.5)	165 (2.5)	1.01	(0.69-1.48)	0.95
Blood sugar lowering treatment					
Ever	26 (1.9)	133 (2.0)	0.96	(0.62-1.47)	0.84
In the prior 12 months:					
- Any	24 (1.8)	105 (1.6)	1.12	(0.72-1.76)	0.62
- Insulin	9 (0.7)	43 (0.6)	1.02	(0.49-2.09)	0.96
- Oral treatment (and no insulin)	15 (1.1)	62 (0.9)	1.19	(0.67-2.09)	0.55
- No blood sugar lowering treatments	10 (0.7)	60 (0.9)	0.82	(0.42-1.62)	0.57
Eye involvement					
No	24 (1.8)	98 (1.5)	1.21	(0.77-1.92)	0.40
Yes	10 (0.7)	67 (1.0)	0.72	(0.37-1.41)	0.34
*Other complications**					
No	27 (2.0)	143 (2.1)	0.93	(0.61-1.42)	0.75
Yes	7 (0.5)	22 (0.3)	1.50	(0.63-3.54)	0.36
Poor control – clinical record‡					
No	29 (2.2)	118 (1.8)	1.21	(0.80-1.84)	0.36
Yes	5 (0.4)	47 (0.7)	0.52	(0.21-1.31)	0.16
Poor control – chemical:HbA1c result ≥7% (≥53 mmol/mol) in prior 12 months					
Yes	18 (1.3)	66 (1.0)	1.35	(0.80-2.28)	0.27

*All the timings in this table relate to the index date. * Neuropathy, foot ulcer, peripheral vascular disease, renal manifestations – 14 terms; ‡ ?Read code entries for 'brittle diabetes', ketoacidosis/ketoacidotic coma, 'poor control', 'poor compliance', 'instable diabetes – 12 terms. There were 17 codes for eye involvement*

Mental health problems and psychotropic drug treatments

In all, 1,846 (23%) of the 8,000 subjects had had at least one general practice consultation in one of the coded psychiatric categories prior to their index date, including 1,653 (21%) in the previous 12 months. The main reason for consultation was neurosis, followed by psychosis, while overt schizophrenia was unusual (Table 14). The median time from record of first diagnosis to the index date (duration of illness) was 5.3 years, IQR 2.2 to 11.6 years (Table 15).

Table 14: Mental health diagnoses in the 1,846 subjects consulting with a mental health problem before the index date

Mental health diagnosis	N (%)
Neurosis	1437 (77.8)
Psychosis	651 (35.3)
Personality disorder	171 (9.2)
Schizophrenia	22 (1.2)
Paranoia	0 (-)
Other	216 (11.7)
*Total**	*2497*

**The total exceeds the total of these with mental health problems as several subjects had >1 problem*

Table 15: Time since diagnosis (duration of disease) among the 1,846 subjects with a mental health consultation

Duration of disease	N	%
<1 year	195	10.6
1-3 years	414	22.4
4-6 years	397	21.5
7-9 years	259	14.0
≥10 years	581	31.5
Total	*1846*	*100.0*

Table 16 shows, by diagnosis, associations with occupational injury and ever have consulted with a mental health problem prior to the index date; Table 17 presents the same information for consultations more than 12 months before the index date. A statistically significant association was found with consulting with a mental health problem, the odds of injury being raised 46% (P<0.001) (Table 16). Statistically significant associations were also found with consultations related to psychosis (OR 1.31, P=0.011), neurosis (OR 1.43, P<0.001) and certain other mental health conditions (OR 1.55, P=0.011). Similar associations were evident for mental health consultations more than 12 months before the index date (Table 17), the relation with 'other' conditions being even stronger.

Table 16: Relation between consulting with an occupational injury and consulting with a mental health problem

Before the index date	Cases N (%)	Controls N (%)	OR	95 % CI	P-value	Attributable fraction in the exposed
No mental health consultation	966 (71.7)	5188 (78.0)	1	(reference)		
Consultation with:						
Any psychiatric condition	382 (28.3)	1464 (22.0)	1.46	(1.27-1.67)	<0.001	31.5%
Psychosis	132 (9.8)	519 (7.8)	1.31	(1.06-1.61)	0.011	23.7%
Schizophrenia	3 (0.2)	19 (0.3)	0.78	(0.23-2.63)	0.69	-
Neurosis	298 (22.1)	1139 (17.1)	1.43	(1.23-1.66)	<0.001	30.1%
Personality problem	34 (2.5)	137 (2.1)	1.24	(0.84-1.84)	0.28	19.4%
Other mental health condition	50 (3.7)	166 (2.5)	1.55	(1.11-2.16)	0.011	35.5%

Table 17: Relation between consulting with an occupational injury, more than 12 months prior to that injury

Before the index date	Cases N (%)	Controls N (%)	OR	95 % CI	P-value	Attributable fraction in the exposed
No mental health consultation	966 (71.7)	5188 (78.0)	1	(reference)		
Consulted with:						
Any psychiatric condition	345 (25.6)	1308 (19.7)	1.47	(1.27-1.70)	<0.001	32.0%
Psychosis	119 (8.8)	456 (6.9)	1.34	(1.08-1.67)	0.008	25.4%
Schizophrenia	3 (0.2)	19 (0.3)	0.78	(0.23-2.64)	0.69	-
Neurosis	261 (19.4)	1006(15.1)	1.40	(1.19-1.65)	<0.001	28.6%
Personality problem	33 (2.5)	124 (1.9)	1.34	(0.90-1.98)	0.144	25.4%
Other mental health condition	48 (3.6)	147 (2.2)	1.69	(1.20-2.38)	0.003	40.8%

The attributable fraction in exposed subjects was 31.5% (Table 16). This figure can be interpreted as the proportion of injury consultations *among subjects with mental health consultations* that are potentially caused by their underlying problem, or alternatively, the fraction of injury events leading to consultation that might potentially be avoided. The corresponding population attributable fraction for mental health consultation before the index event was 8.9%. This figure can be interpreted as the proportion of injury consultations potentially attributable to mental health problems and potentially avoidable in the whole population (recognising that only some people in the population have such a problem).

In all, 1,682 subjects (21%) were prescribed a hypnotic, anxiolytic, antidepressant drug or a barbiturate before the index workplace injury consultation. (In practice, however, no-one was coded as being prescribed a barbiturate.) Table 18 lists the frequency of subjects by drug class, both overall and within the 12 months preceding the index date. More people received antidepressant treatment than for the other drug classes.

Tables 19 and 20 show associations with occupational injury consultation and being prescribed these drugs (a) at any time before the index date (Table 19) and (b) within the 12 months before the index date (Table 20). RRs were elevated in all analyses. The odds of having an injury consultation were raised 59% for patients prescribed *any* of the drugs in comparison with subjects who had *never* had such a prescription (Table 19). Risks were even higher in relation to hypnotics (OR 1.65) and anxiolytics (OR 1.76), but still elevated 39% in relation to antidepressants. All of the findings in Table 19 were highly significant statistically (P<0.001). For prescriptions in the previous 12 months, a similar pattern was evident, although analyses were based on smaller numbers and therefore less consistently significant at the 5% level. Only risks from hypnotics were higher, and only marginally so (OR 1.72, P<0.001).

Antidepressants (but not the other treatment classes) have major categories of sub-classification. Some 711 subjects had taken a tricyclic antidepressant and 700 subjects a Selective Serotonin Re-uptake Inhibitor (SSRI) before the index date; however, monamine oxidase inhibitors and 'other' antidepressant drugs were taken too infrequently to warrant further analysis. Risks of injury consultation were significantly elevated and to a similar extent for both of the main classes of antidepressant: OR for tricyclic antidepressants, 1.41 (95%CI 1.15-1.71), P=0.001; OR for SSRIs, 1.35 (95%CI 1.10-1.66), P=0.004.

Table 18: Number of subjects prescribed hypnotic, anxiolytic and antidepressant drugs before the occupational injury consultation – overall and within the prior 12 months

Drugs prescribed	N* ever	N* past 12 months
Antidepressant(s)	1189	561
Hypnotic drug(s)	860	320
Anxiolytic drug(s)	590	198
Barbiturates	None	None

** Subjects were commonly prescribed more than one class of treatment; hence the total of people in the columns of this table is greater than the total of people with at least one of the treatments*

Table 19: Relation between consulting with an occupational injury and being prescribed a hypnotic, anxiolytic or antidepressant drug

Before the index date	Cases (n=1348) N (%)	Controls (n=6652) N (%)	OR	95 % CI	P-value	Attributable fraction in the exposed
Never prescribed any of these drugs	982 (72.8)	5336 (80.2)	1			
Prescribed one or more of these drugs	366 (27.2)	1316 (19.8)	1.59	(1.38-1.83)	<0.001	37.1%
Prescribed						
- Antidepressants	244 (18.1)	945 (14.2)	1.39	(1.18-1.63)	<0.001	28.1%
- Hypnotics	201 (14.9)	659 (9.9)	1.65	(1.38-1.97)	<0.001	39.4%
- Anxiolytics	147 (10.9)	443 (6.7)	1.76	(1.44-2.16)	<0.001	43.2%

Table 20: Relation between consulting with an occupational injury and being prescribed a hypnotic, anxiolytic or antidepressant drug in the prior 12 months

12 months before the index date	Cases (n=1348) N (%)	Controls (n=6652) N (%)	OR	95 % CI	P-value	Attributable fraction in the exposed
Never prescribed any of these drugs	982 (72.8)	5336 (80.2)	1			
Prescribed one or more of these drugs	174 (12.9)	628 (9.4)	1.46	(1.21-1.75)	<0.001	31.5%
Prescribed						
- Antidepressants	111 (8.2)	450 (6.8)	1.26	(1.00-1.57)	0.04	20.6%
- Hypnotics	80 (5.9)	240 (3.6)	1.72	(1.32-2.23)	<0.001	41.9%
- Anxiolytics	54 (4.0)	144 (2.2)	1.46	(0.71-2.98)	0.30	31.5%

Attributable fractions in exposed subjects ranged from 28% (antidepressants) to 43% (anxiolytics) (Table 19). These figures can be interpreted as the proportion of injury consultations *among subjects prescribed such treatments* that are potentially caused by their treatment (or underlying condition), or alternatively, the fraction of injury events leading to consultation that might potentially be avoided. The corresponding population attributable fraction for taking a psychotropic drug ever before the index event was 10.1%. These figures can be interpreted as the proportion of injury consultations potentially attributable to the treatment and potentially avoidable in the whole population (recognising that only some in the population are under the relevant treatments).

Overlap between mental health problems and psychotropic treatments

As patients with mental health problems (e.g. depression) are not infrequently treated with psychotropic drugs (e.g. antidepressants), and the many prescribed psychotropic drugs are given for mental health concerns, the relative contribution of each to risk of injury is rather difficult to unpick. However, when Table 19 was adjusted for having a relevant mental health consultation before the index date a smaller, still statistically significant effect remained: OR 1.20 (95% 1.02–1.40), P=0.025. And, when Table 16 was adjusted for having a relevant psychotropic drug prescription, a similar result was obtained: OR 1.20 (95% 1.01–1.42), P=0.035. It seems that part of the effect of each is explained by the other, but a significant independent contribution of each still exists. To explore this we examined risks relating to four mutually exclusive groups (one exposure but not the other (both permutations), and both exposures together, relative to neither exposure (Table 21). Risks were significantly elevated, both in subjects who had a mental health consultation without psychotropic drug prescription (OR 1.43, P=0.001) and vice versa (OR 1.77; P <0.001).

Table 21: The overlap between mental health problems and psychotropic prescriptions and their relation to consulting with an occupational injury

Before the index date	Cases (n=1348) N (%)	Controls (n=6652) N (%)	OR	95 % CI	P-value
No prescription or MHP	854 (63.4)	4814 (72.3)	1		
MHP but no prescription	128 (9.5)	522 (7.8)	1.43	(1.16-1.76)	0.001
Prescription but no MHP	112 (8.3)	374 (5.6)	1.77	(1.41-2.22)	<0.001
Both MHP and a prescription	254 (18.8)	942 (14.2)	1.63	(1.38-1.92)	<0.001

MHP – mental health problem, as listed in Table 14; 'Prescription' – any of the classes of psychotropic drug listed in Table 18

Sensory impairments and problems of balance

Among the 8,000 eligible subjects were 173 individuals (2.2%) classed as having an eye problem before the index date, 793 with an ear problem (9.9%, including 336 with deafness or impaired hearing and 483 with a non-acute otitis media), and 266 (3.3%) with a problem of balance. Tables 22, 23 and 24 provide risk estimates in relation to these impairments and diagnoses before the index date for injury consultation.

Table 22: Association between prior problems of vision and consultation with an occupational injury

Before the index date	N (%)		OR	95 % CI	P-value
	Cases (n=1348)	Controls (n=6652)			
No eye problem	1312 (97.3)	6515 (97.9)	1		
Any eye problem	36 (2.7)	137 (2.1)	1.32	(0.90-1.92)	0.15
- Glaucoma	6 (0.44)	25 (0.37)	1.19	(0.49-2.93)	0.70
- Cataract	6 (0.44)	32 (0.48)	0.94	(0.39-2.25)	0.88
- Retina	10 (0.74)	60 (0.90)	0.82	(0.41-1.61)	0.56
- Blindness or other visual impairment*	15 (1.1)	39 (0.6)	1.90	(1.05-3.46)	0.034

** As defined in Appendix 8*

Table 23: Association between prior problems of hearing and consultation with an occupational injury

Before the index date	N (%)		OR	95 % CI	P-value
	Cases (n=1348)	Controls (n=6652)			
No ear problem	1163 (86.3)	6045 (90.9)	1		
Any ear problem	185 (13.7)	607 (9.1)	1.64	(1.37-1.98)	<0.001
- Deafness, hearing impairment, or use of a hearing aid*	65 (4.8)	271 (4.1)	1.28	(0.97-1.69)	0.087
- Perforated ear drum	9 (0.7)	36 (0.5)	1.34	(0.65-2.79)	0.43
- Non-acute otitis media	130 (9.6)	352 (5.3)	2.03	(1.63-2.53)	<0.001

** As defined in Appendix 8*

Table 24: Association between prior problems of balance* and consultation with an occupational injury

	N (%)		OR	95 % CI	P-value
	Cases (n=1348)	Controls (n=6652)			
No balance problem before the index date	1293 (95.9)	6441(96.8)	1		
Any balance problem before the index date	55 (4.1)	211 (3.2)	1.31	(0.96-1.78)	0.086
- <12 months before	17 (1.3)	47 (0.7)	1.81	(1.03-3.17)	0.038
- >12 months before	38 (2.8)	164 (2.5)	1.23	(0.87-1.73)	0.45

** As defined in Appendix 8 (includes vertigo, labyrinthitis, Meniere's disease and vestibular disorder)*

Having an eye problem moderately increased risk of injury consultation (by some 32% - Table 22); but findings overall were not statistically significant, and risks associated with specific eye diseases (glaucoma, cataract and disorders of the retina) were less clearly elevated. However, where there was a medical record of blindness, partial blindness, visual impairment, poor sight, or loss of field of vision, the odds of an ensuing injury consultation were raised by 90% (P<0.04).

Having an ear problem was significantly associated with injury consultation (odds raised >60%, P<0.001, Table 23), but much of this risk emanated from the strong association with history of non-acute otitis media (OR approximately doubled, P<0.001); and risks associated with deafness, hearing impairment, and perforated ear drum were less strongly elevated (28-34%) and not statistically significant. For non-acute otitis media, risks were higher if the last relevant consultation was in the 12 months prior to injury (OR 2.70, 95%CI 1.58-4.62, P<0.001) than >12 months previously (OR 1.90, P<0.001).

Finally, Table 24 presents risk estimates in relation to disorders of balance. Overall, these were elevated by some 31%, findings falling just short of being statistically significant at the 5% level. Risks were higher however (elevated 81%) and statistically significant (P<0.04) where the relevant consultation was in the 12 months prior to injury compared with more than 12 months before this (OR 1.23, P=0.24).

Discussion

General remarks

The CPRD has several strengths and also some limitations in investigating workplace injury risk. The database allowed us to identify a large sample of occupational injuries across Britain, together with a selection of age-, sex- and location-matched controls. Almost everyone in Britain registers with a family doctor for services that can be freely accessed at the point of delivery. Thus, general practice patient lists offer a sampling frame that is generally representative of the total population. Moreover, the CPRD database, which has been shown empirically to have a high degree of completeness (>97%) and validity for a number of measures[73, 77], is likely to capture a high proportion of acute injuries presenting to medical services (hospital attendances, which are logged within the database, are also free at the point of care, while accidents are rarely treated privately). Set against this, we could not investigate injuries that were only self-treated, or mishaps resulting only in damage to property or near miss events. The complexity of the coding system was such that we may not have discovered every case of occupational injury within the sampling frame. A comparison with RIDDOR statistics also suggests an under-ascertainment of cases, considering that the database should reflect the injury experience of 6% of the population over two decades. The most likely explanation for this is that many injury cases were not coded as occupational by GPs; we focussed attention only on those where we had confidence of a relation with work. However, such omissions are unlikely to cause bias in terms of the associations of interest, as they are likely to be non-differential – i.e. similar in extent whether individuals had a health problem or not.

A more significant limitation of the CPRD is that it does not maintain a reliable record of patients' occupations. Cases of work-related injury, by definition, will have been selected from people in work; however, some controls may have been unemployed. Cases may also have been drawn more often from manual occupations than controls (those in which injuries are more common). In theory bias could arise if controls over-represent the prevalence of health problems or treatments for disorders that prevent work, or if these are more common in manual jobs. However, previously we conducted a sensitivity analysis, based on published data, to explore the resultant bias and showed that it is likely to be small in practice[78]. In fact, this conclusion can be drawn without sophisticated calculations: the excess prevalence in controls will reflect the weighted average of risks in subgroups, and will be diluted on the one hand by a low background rate of unemployment and on the other by the relatively small difference in risk between manual and non-manual occupations; moreover, potential biases arising from this lack of information will act in opposite directions and tend to counter one another. The resulting estimated OR is likely to differ from the "true" OR by only a small margin[78].

The CPRD record also tends to lack information on the circumstances of occupational injury meaning that some cases could have been injured through the fault of third parties rather than themselves. Furthermore, some codes were ambiguous as to occupational causation (such that 15% of cases were possibly, but not probably occupational, as judged independently by two of us blinded to exposure status). Such errors would, if anything, bias estimates of RR towards the 'no-effect' level (i.e. being random, would tend to obscure associations), and would not explain any elevation in risks in our analyses.

Risks of workplace injury might have been reduced by healthy worker selection effects in the study population – that is, subjects with health problems opting for work with less injury potential or being screened out of hazardous work. This well-known effect would not compromise the internal validity of our study (as risks in workplaces would truly be lower), but indicates a need for caution in simple extrapolation to unselected workforces. In practice, it is known that workers with, for example, diabetes and epilepsy, are selected out of work (such groups have higher unemployment rates[11,79]), and our analyses provide an indication as to whether such selection is sufficient in practice to control risks. This aspect is further discussed below in relation to specific diseases.

A notable strength of the CPRD is that for each subject we could access a hugely detailed medical record in which medical diagnoses and treatments had been contemporaneously logged, independently of the injury consultation and with full information on dates of events. The relative timing of events was thus established, overcoming the limitations we have highlighted regarding much previous published research. As a further safeguard against the possibility that errors in the coding of dates masked an element of reverse causation, we also explored associations with diagnoses made at least 12 months before the injury consultation in sensitivity analysis (risk estimates were little changed).

Epilepsy

The findings on epilepsy are generally reassuring. No statistically significant elevation of risk was found in any

of the analyses conducted. At their upper 95% confidence limits, the results tend also to rule out the possibility of a big effect from epilepsy missed by chance alone. A possible explanation, as mentioned above, is that those with troublesome epilepsy may have become differentially selected out of hazardous work, and that those who remain in employment have stable well-controlled disease.

The small previous literature on epilepsy and workplace injury points to somewhat higher risks than others have found, closer to the upper 95% confidence limit in our analysis. Of the four reports in Table 1, the two US studies[13, 14] involved self-reports of exposure (history of fitting) and of outcome (injury mishap) at the same time point. This raises concern that risks may have been over-estimated, either because of reporting bias or reverse causation. The former might arise if those with epilepsy tended on average to have better recall of injuries (e.g. if more motivated to claim a benefit or more health-aware), or if interviewers, knowing a person's health status, probed more thoroughly when asking an individual with epilepsy about their injury record; the latter might arise if the order of events got confused for some respondents. The study by Lewis et al[13] also focussed on medical attention while that by Zwerling et al[14] took as its outcome "injury...that caused a residual limitation": conceivably, in the event of injury, people with epilepsy receive medical attention more readily than those without this health problem (a potential bias common also to the present analysis), or are more likely to report a residual limitation. Finally, the two US studies had low statistical power. That by Zwerling *et al*[14] (considerably the largest investigation, with a sample size exceeding 76,000) was compatible at its 95% confidence limits with a 50% reduction in risk or a 389% increase: thus, the number of self-reported injuries was probably very low. The small UK study by Dasgupta *et al*[12], based on 45 workers with epilepsy and 38 controls, also had wide confidence limits.

Of note is the international cohort study by Cornaggia *et al*[15], which recruited 631 adults with epilepsy attending specialist medical centres in Estonia, Germany, Italy, the Netherlands, Portugal, Russia, the UK and Slovenia, and which found risks to be elevated 2.5-fold ($P<0.05$). This apparently concerning finding needs to be interpreted in light of several methodological limitations and tempered also by the findings on severity and relation to seizures. Considering limitations, controls came from a volunteer group of relatives, friends or workmates rather than a representative sample of the general population. Strangely, the sample included unemployed people, housewives, pensioners, and students in education, and some 50% of those analysed could not have been at risk of a workplace injury. Moreover, the proportions whose occupations were reported as unemployed, housewife, and pensioner were higher in patients with epilepsy than in the control group, with the potential to upwardly bias assessment of risk (selection bias). The definition of injury was complex ("any event occurring at work and secondary to a sudden unexpected cause, which was not a disease, leading to physical damage requiring medical attention or resulting in financial obligation") and the impact of this on findings is unclear. Outcomes were self-reported, although prospectively over follow up in personal diaries. Regarding severity, the 22 injuries in patients with epilepsy and nine in controls (all in the workplace) essentially comprised contusions and haematoma (bruises), minor burns, wounds and abrasions; only two injuries were considered to be seizure-related, both mild.

In comparison, the present analysis, although powered only to exclude bigger effects, found no evidence of important associations or of serious consequences. Increased risks may have been missed by chance, but the low incidence of workplace injury and low prevalence of epilepsy imply that absolute risks in the working population as a whole would be low. Most likely, current employment practice in the UK in relation to workers with epilepsy is not placing them at undue risk of injury. The case for involuntarily restricting their practice on health grounds is therefore not supported by this study, although an argument can still be made for restrictions in 'high risk' and safety critical occupations, especially those that bear substantial responsibility for the safety of others.

Diabetes

Likewise, our findings on diabetes offer broad reassurance. As with epilepsy, no statically significant elevation of risk was found in any analysis, including exploratory analyses focussing on patients with diabetic complications, poorer disease control, and treatments that potentially could impair consciousness, awareness and concentration. At their upper 95% confident limits, the results tend also to rule out the possibility of a big effect from diabetes missed by chance alone.

Diabetic eye involvement and poor control of diabetes might be expected, if anything, to convey a greater risk of accidental injury, so the somewhat reduced risks found may at first sight appear unexpected. One possible explanation is that those with the worst health problems have become differentially selected out of hazardous work. Alternatively, as relatively few subjects had diabetic complications or poor disease control, findings could reflect the play of chance. However, the absence of an increased risk is again noteworthy.

The absence of important associations suggests that current practice in relation to the employment of workers with diabetes is not placing them at particular risk of injury. Moreover, the case for involuntarily restricting their practice on health grounds is not supported by this study.

Mental health problems and psychotropic drug treatments

The data on mental health problems and prescribed psychotropic drug treatments support the conclusions of our previous review, that these factors moderately increase risks of occupational injury. Risks were elevated 46% overall in relation to mental health problems and 59% overall in relation to psychotropic drug treatments, compatible with other published data. There was evidence that the effects of psychotropic medication and of a mental health condition do not rest upon one another, but exist separately as well as in overlap. For patients prescribed common classes of antidepressants we estimate that risks of injury are raised about 35-40%. The data further indicate that about 1 in 10 to 1 in 11 of all workplace injuries are attributable to mental health conditions or psychotropic medication, the potentially avoidable fraction being higher (about 30-40%) among individuals with such health problems or prescribed such prescribed treatments.

Table 20 presented a supplementary analysis in which we focussed on exposures close in time (drug prescriptions within the prior 12 months), whereas Table 17 focussed on more distant exposures (mental health consultations at least 12 months *beforehand*). The differing choices reflect a difference of purpose. In

relation to drugs, we were interested in short-term effects; in relation to diagnoses, we wished to exclude the possibility that errors in date coding within the dataset could have led to some reverse causation (e.g. people becoming anxious after and because of an accident, rather than before it). In each analysis, however, differences, relative to the simpler time window of 'exposure at any time before the event', were trivial.

We conclude that mental health problems and psychotropic treatments account for an important and potentially preventable minority of workplace injury events.

Sensory impairments and problems of balance

In keeping with previous research[3,13,14,37,38,41-46,49,50,61,62,65-71], our findings suggest moderately higher risks of occupational injury in workers with impairments of vision and hearing. Our estimates of risk are similar to the median of the estimates of risk presented in Table 4. However, the median estimate from Table 4 for visual impairment is likely to be lowered by studies reporting no effect from the simple wearing of glasses[41-44, 50] (a situation in which no increase in risk would normally be expected). More severe eye problems, such as medically diagnosed blindness, partial blindness, "low vision" and visual field defects resulted in a higher estimate of risk in our study than overall (OR 1.90 vs. 1.32), closer to the only study from Table 4 that considered 'blindness' as a risk factor[14].

We found no significant increases in risk in relation to glaucoma, cataract, and disease of the retina, nor for perforation of the ear drum. Such specific eye diseases were uncommon, however, among this population, which limits statistical power to draw firm conclusions: RRs as high as 1.6-2.9 cannot definitely be excluded, although our best estimates of effect are broadly reassuring. Perforated ear drum was also uncommon, and a correctable condition that would not necessarily cause long-term hearing impairment.

Notably, we found strong associations with non-acute otitis media and disorders of balance. The category "non-acute" otitis media was chosen to exclude acute middle ear infection (a common event, especially in childhood that is liable to have little enduring effect), but to include chronic infections that could lead to a fluid-filled middle ear and conductive hearing loss. To focus on ear pathology close in time to the injury consultation, we analysed associations with consultation for non-acute otitis media within the previous 12 months: risks were higher than when the most recent consultation for this ear condition was more than 12 months before. Associations were highly significant statistically and so unlikely to be explained by chance alone. However, if the effect arises through hearing impairment it is surprising that risk is substantially greater than that for deafness and hearing impairment coded more directly. As the link we have found is novel and case-control studies may be subject to various biases[80], we suggest that further confirmatory research is needed.

Likewise, although we found a clear link between disorders of balance and injury risk, this requires corroboration. Such a relationship is *a priori* and, plausibly, risks were some 50% higher when the balance problem was recent than when more distant. People with dizziness often complain of difficulty in driving[72,81,82] and physicians sometimes advise them not to drive[83]. However, this risk factor has rarely been studied in the

workplace and our earlier systematic review found no relevant reports estimating injury risks from this source[2]. An obvious need exists for further research. In the meantime, our data suggest a need to be cautious in the job placement of affected workers, especially where their work carries unusual risks or special responsibility for the safety of others.

Summary and implications for practice

Evidence on common health problems, their treatments and risk of occupational injury is limited in quantity, quality, and specificity of information. Such risk estimates as have been established indicate a fairly modest increase in risk in workers with mental health problems, prescribed sedative drugs, or with poor eyesight and hearing; previous evidence on epilepsy favours an increased risk (but not of major injury), while that on diabetes is mixed and inconclusive.

However, many previous studies, by virtue of their design, may have over-estimated risks. This study sought to overcome certain key methodological limitations of previous research, by offering independent corroboration of diagnosis and injury with dates of events more firmly established.

No evidence was found of important risks of injury among workers with epilepsy and diabetes, including those with more problematic degrees of disease. By contrast, many forms of mental health problem, many common psychotropic treatments, and limitations of sight, hearing and balance were all associated with a significantly increased risk of injury. Risks were not increased however to an extent that would automatically debar employment; they were sufficient, however, to suggest that caution should be exercised in job placement, particularly in work where mishaps may carry an important potential for injury to the worker or to third parties. An important minority of workplace injuries may be avoidable by better control of these health conditions, although placement decisions in the individual need to reflect individualised assessment of risk.

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Appendix 1: Codes supplied to the CPRD and used to define a work-related injury consultation (not all of these codes were found in the 8,000 subjects finally analysed)

Codes	Accident/Injury
L 5250W	Accident at work
T 920	Accident on duty
T01x000	Train collision with other vehicle, railway employee injured
T01y000	Train collision with other object, railway employee injured
T020000	Derailed by track problem, no collision, employee injured
T031000	Train accident involving fire, railway employee injured
T032000	Train accident involving burning, railway employee injured
T04z000	Fall in, on or from train NOS, railway employee injured
T050000	Crushed by rolling stock - railway employee
T051000	Knocked down by rolling stock - railway employee
T053000	Killed by rolling stock - railway employee
T05z000	Injured by rolling stock, NOS - railway employee
T0x2000	Injured by object set in motion by train - railway employee
T0x3000	Train hit by falling object - railway employee injured
T402200	Fall from burning ship - crew of other watercraft injured
T40z600	Other watercraft accident - docker or stevedore injured
T410200	Burned while ship on fire, crew of other watercraft injured
T410600	Burned while ship on fire, docker or stevedore injured
T411200	Crushed-ships in collision - crew of other watercraft inj
T411600	Crushed-ships in collision - docker or stevedore injured
T413200	Fall due to watercraft accident - crew other watercraft injured
T413600	Fall due to watercraft acciddent - docker or stevedore injured
T414200	Watercraft accident -hit by object - crew of other watercraft inj
T41z200	Accident to watercraft and inj nos – crew of other watercraft
T41z600	Accident to watercraft and injury nos – docker or stevedore
T421600	Submersion-fall overboard - docker or stevedore injured
T42z200	Submers+water transport acc NOS - crew other watercraft injured
T431200	Fall-ladder water transport - crew other watercraft injured
T473600	Crushed-ship+static object NOS - docker or stevedore injured
T474600	Crushed between ships-no WTA - docker or stevedore injured
T500200	Aircraft collision-takeoff - crew comm aircraft surf/s injury
T505800	Aircraft fire on landing - ground crew/airline employee injury
T50y200	Acc aircraft-takeoff NOS - crew comm aircraft surf/s injured
T510200	Collision aircraft-flying+other aircraft-crew comm aircraft surf/s injury
T511800	Collision aircraft-flying+bird - ground crew/air employee injury
T512800	Collision aircraft-flying+other object- ground crew/air employee injury
T51z200	Aircraft accident NOS - crew comm aircraft surf/surf injured
T530200	Accident boarding aircraft – crew comm. Aircraft su
T530800	Accident boarding aircraft – ground crew/airline e
T531200	Accident alighting aircraft – crew comm. Aircraft surf
T531800	Accident alighting aircraft – ground crew/airline emp
T532800	Fall in aircraft - ground crew or airline employee injured

T53z100	Aircraft fall NOS - occupant of military aircraft injured
T543800	Aircraft rotating propeller injury- ground crew/airline employ injury
T54z200	Other air transport acc NOS- crew comm aircraft surf/s injury
T71..00	Place of occurrence of accident or poisoning, farm (P)
T710.00	Place of occurrence of accident or poisoning, farm building
T71z.00	Place of occurrence of accident or poisoning, farm NOS (P)
T72..00	Place of occurrence of accident or poisoning, mine or quarry
T722.00	Place of accident or poisoning, tunnel under construction
T72z.00	Place of accident or poisoning, mine or quarry NOS
T73..00	Place of accident or poisoning, industrial place/premises
T733.00	Place of accident or poisoning, factory building
T735.00	Place of accident or poisoning, garage, place of work
T736.00	Place of accident or poisoning, industrial yard
T7y5.00	Place of occurrence of accident or poisoning, dock
TD15500	Burning caused by conflagration in factory
TD18500	Hit by object falling from burning factory
TD19000	Jump from burning barn
TD1y600	Other accident resulting from fire in farm outbuilding
TD65.00	Accident caused by brazier in other structure or building
TD66.00	Accident caused by furnace in other structure or building
TE01.00	Accidents due to heat of man-made origin (P)
TE01000	Accident due to heat in boiler room
TE01100	Accident due to heat in drying room
TE01200	Accident due to heat in factory
TE01300	Accident due to heat generated in transport vehicle
TE11.00	Accidents due to cold of man-made origin (P)
TE11000	Accidents due to dry ice
TE11100	Accidents due to liquid air
TE11300	Accidents due to liquid nitrogen (P)
TE11400	Accidents due to deep freeze unit (P)
TE11z00	Accident due to cold of man-made cold origin nos (P)
TE21000	Accident due to sudden air pressure change, aircraft – ascent (P)
TE22100	Accident due to reduction air pressure - ascent from diving (P)
TE22112	Accident due to reduction air pressure-surfacing from diving (P)
TE2yz00	Accident due to other cause of air pressure change NOS (P)
TF03200	Accidental drowning/submersion during placement fishing nets
TF03500	Accidental drowning/submersion during underwater repairs
TG30000	Accidentally burned by machinery (P)
TG30500	Accidentally drowned by machinery
TG4y400	Accident caused by lathe turnings
TG80200	Accidental burning or scalding caused by liquid me
TG80200	Accidental burning or scalding caused by liquid metal
TG81000	Accidental burning caused by acid
TG81011	Accidental burning by hydrofluoric acid
TG81100	Accidental burning caused by ammonia
TG81400	Accidental burning caused by vitriol burning
TG81500	Accidental burning caused by hydrofluoric acid
TG81500	Accidental burning caused by hydrofluoric acid
TG81y00	Accidental burning caused by other caustic or corrosive (P)

TG81z00	Accidental burning caused by caustic or corrosive (P)
TG8y200	Accidental burning caused by steam pipe
TG8y300	Accidental burning or scalding caused by bitumen oil
TG8y400	Accidental burning or scalding caused by plastic
TG92.00	Accidents caused by industrial electric current
TG92z00	Accident caused by industrial electric current nos
TO5z000	Injured by rolling stock, nos – railway employee
TOx2000	Injured by object set in motion by train – railway
U112500	[X]Striking against/struck by other object occ trade/service area
U113600	[X]Caught crushed jammed/pinched in/between obj ectocc industrial/construction area
U11C600	[X]Handgun discharge occurrence at industrial/construction area
U11E600	[X]Discharge from other/unspecified firearm occurrence at industrial/construction area
U11Q700	[X]Foreign body entering into/thro eye/natural orifice occurrence on farm
U13z600	[X]Unspecified drowning+submersion occurrence industrial/construction area
U150.12	[X]Electric shock - transmission line
U164700	[X]Exposure to ignition of high flammable material occurrence farm
T45..00	Machinery accident in water transport (WT)
T450.00	Injury in water transport caused by deck machinery
T450600	WT injury-deck machinery - docker or stevedore injured
T450y00	WT injury-deck machinery - other specified person injured
T451y00	WT injury-engine room machine - other specified person inj
T453200	WT injury-laundry machinery - crew other watercraft injured
T453600	WT injury-laundry machinery - docker or stevedore injured
T454.00	Injury in water transport caused by loading machines
T454600	WT injury-loading machinery - docker or stevedore injured
T45zy00	WT machinery accident NOS - other specified person injured
TD3y000	Accident caused by clothes on fire from blowlamp
TD3y100	Accident caused by clothes on fire from blowtorch
TD3y900	Accident caused by clothes on fire from welding torch
TDyy000	Accident caused by blowlamp
TDyy100	Accident caused by blowtorch
TG22. 00	Accidentally caught in hand tool, appliance or imp
TG25.00	Accidentally caught under packing crate due to losing grip
TG3..00	Accidents caused by machinery
TG30000	Accidentally burned by machinery
TG30100	Accidentally caught in machinery
TG30200	Accident caused by collapse of machinery
TG30300	Accidentally crushed by machinery
TG30500	Accidentally drowned by machinery
TG30700	Accident caused by fall into moving part of machine
TG30800	Accident caused by fall from a moving part of machine
TG30C00	Accident caused by overturning of machinery
TG30D00	Accidentally pinned under machinery
TG30F00	Accidentally struck by machinery
TG30z00	Accident caused by machinery nos
TG31.00	Accidents caused by agricultural machines
TG31000	Accident caused by animal powered agricultural machine
TG31100	Accident caused by hay derrick
TG31400	Accident caused by forging machine

TG31500	Accident caused by hay rake
TG31z00	Accident caused by agricultural machinery nos
TG32000	Accident caused by land bore or drill
TG32200	Accident caused by drilling shaft hoist
TG32200	Accident caused by drilling shaft hoist
TG32300	Accident caused by drilling shaft lift
TG32400	Accident caused by drilling under-cutter
TG32z00	Accident caused by mining or earth drilling machinery NOS
TG33.00	Accidents caused by lifting machines and appliances
TG33000	Accident caused by chain hoist
TG33300	Accident caused by grain elevator
TG33700	Accident caused by pulley block
TG33800	Accident caused by winch
TG34.00	Accidents caused by metalworking machines
TG34000	Accident caused by abrasive wheel
TG34100	Accident caused by forging machine
TG34200	Accident caused by lathe
TG34300	Accident caused by mechanical shears
TG34500	Accident caused by metal milling machine
TG34600	Accident caused by metal power press
TG34800	Accident caused by metal sawing machine
TG34z00	Accident caused by metalworking machine nos
TG35.00	Accidents caused by woodworking and forming machines
TG35000	Accident caused by band saw
TG35100	Accident caused by bench saw
TG35200	Accident caused by circular saw
TG35300	Accident caused by moulding machine
TG35500	Accident caused by powered saw
TG35600	Accident caused by radial saw
TG35700	Accident caused by sander
TG35z00	Accident caused by woodworking or forming machine
TG36.00	Accidents caused by prime movers, except electrical motors
TG36100	Accident caused by internal combustion engine
TG36200	Accident caused by steam engine
TG37.00	Accidents caused by transmission machinery
TG37000	Accident caused by transmission belt
TG37200	Accident caused by transmission chain
TG37300	Accident caused by transmission gear
TG37400	Accident caused by transmission pinion
TG37500	Accident caused by transmission pulley
TG37600	Accident caused by transmission shaft
TG38200	Accident caused by steam shovel
TG3y000	Accident caused by machine for manufacture of clothes
TG3y100	Accident caused by machine for manufacture of food/beverages
TG3y200	Accident caused by machine for manufacture of paper
TG3y300	Accident caused by printing machine
TG3y500	Accident caused by spinning machine
TG3y500	Accident caused by weaving machine
TG3y700	Accident caused by textile machine

TG3z. 00	Accident caused by machinery nos
TG3z.11	Industrial machinery accident NOS
TG41000	Accident caused by powered drill (P)
TG41200	Accident caused by powered hedge clipper (P)
TG41300	Accident caused by powered rivet gun
TG41400	Accident caused by powered snow blower
TG41500	Accident caused by powered staple gun (P)
TG42400	Accident caused by electric sewing machine (P)
TG44. 00	Accident caused by other hand tools and implements (P)
TG44200	Accident caused by chisel (P)
TG44400	Accident caused by hand saw (P)
TG44500	Accident caused by hoe (P)
TG44800	Accident caused by paper cutter (P)
TG44900	Accident caused by pitchfork (P)
TG44A00	Accident caused by rake (P)
TG44C00	Accident caused by screwdriver (P)
TG44E00	Accident caused by shovel (P)
TG44z00	Accident caused by hand tool or implement nos (P)
TG92100	Accident caused by industrial electrical control apparatus
TG92200	Accident caused by industrial electrical equipment+machines
TGA2300	Overexposure to oxygas welding torch
U119500	[X]Cont with other powered hand tool+household machine trade/service area
U11Az00	[X]Contact with agricultural machinery occurrenceat unspecifed place
U11B500	[X]Contact with other+unspecified machinery occurrence at trade/service area
U11B700	[X]Contact with other+unspecified machinery occurrence on farm
T602.00	Accident involving battery powered mail trucks
T603.00	Accident involving coal car in mine
T604.00	Accident involving logging car
T605.00	Accident involving industrial self propelled truck
T60E.00	Fall from powered vehicle, industrial or commercial
TD66.00	Accident caused by furnace in other structure or B
TG30A00	Accidental mechanical suffocation caused by machine
TG30E00	Accidentally run over by machinery
TG30G00	Accidentally thrown from machinery
TG31000	Accident caused by animal powered agricultural machine
TG31200	Accident caused by farm tractor
TG31300	Accident caused by harvester
TG31400	Accident caused by hay mower
TG31600	Accident caused by reaper
TG31700	Accident caused by thresher
TG32.00	Accidents caused by mining and earth-drilling machines
TG32100	Accident caused by seabed bore or drill
TG32z00	Accident caused by mining or earth drilling machine
TG33.00	Accidents caused by lifting machine and appliances
TG33100	Accident caused by crane
TG33200	Accident caused by Derrick
TG33500	Accident caused by forklift truck
TG33z00	Accident caused by lifting machine or appliance no
TG34700	Accident caused by metal rolling-mill

TG36000	Accident caused by gas turbine
TG36300	Accident caused by water driven turbine
TG38.00	Accident caused by earth moving/excavation machine
TG38000	Accident caused by bulldozer
TG38100	Accident caused by road scraper
TG91000	Accident caused by electric power generating plant
TG91100	Accident caused by electric power distribution station
TG92000	Accident caused by industrial electrical conductor
TG92300	Accident caused by industrial electrical transformer
U083500	[X]Driver of special industrial vehicle injury in non-traffic accident
U084500	[X]Driver of special agricultural vehicle injured in non-traffic accident
U085000	[X]Driver of special construction vehicle injured in traffic accident
SM11.00	Benzine causing toxic effect
SM23000	Tetrachloroethylene causing toxic effect
SM23100	Trichloroethylene causing toxic effect
SM30100	Cresol causing toxic effect
SM32200	Sodium hydroxide causing toxic effect (P)
SM4..00	Lead and lead compounds causing toxic effect
SM40100	Lead salts causing toxic effect
SM41100	Tetraethyl lead causing toxic effect
SM5..00	Other metals causing toxic effect (P)
SM55.00	Cadmium causing toxic effect
SM5y100	Copper salts causing toxic effect
SM78.00	Toxic effect of fluorine gas and hydrogen fluoride
T470.00	Accidental poisoning by gases or fumes on ship
T470200	Accidental poison gas/fume on ship – crew other watercraft
T470600	Accidental poison gas/fume on ship – docker or stevedor
T822z00	Accidental poisoning by bromine compounds nos
T903.00	Accidental poisoning by isopropyl alcohol
T903300	Accidental poisoning by secondary propyl alcohol
T904.00	Accidental poisoning by fusel oil
T910.00	Accidental poisoning by synthetic detergents and s (P)
T911.00	Accidental poisoning by soap products (P)
T912.00	Accidental poisoning by polishes (P)
T913.00	Accidental poisoning by other cleaning agents (P)
T913000	Accidental poisoning by scouring agents (P)
T916.00	Accidental poisoning by other paints and varnishes (P)
T916200	Accidental poisoning by non-lead paints (P)
T916300	Accidental poisoning by white washes (P)
T916z00	Accidental poisoning by paint or varnish nos (P)
T920.00	Accidental poisoning by petroleum solvents (P)
T920200	Accidental poisoning by petroleum naphtha
T921000	Accidental poisoning by antiknock additives to pet
T921200	Accidental poisoning by petrol (P)
T921300	Accidental poisoning by kerosene (P)
T922.00	Accidental poisoning by lubricating oils (P)
T924.00	Accidental poisoning by other solvents (P)
T924000	Accidental poisoning by benzene
T92z.00	Accidental poisoning by solvent nos (P)

T93..00	Accidental poisoning by agricultural chemical prep
T930.00	Accidental poisoning by organochlorine insecticides
T930000	Accidental poisoning by benzene hexachlorine
T930100	Accidental poisoning by chlordane
T930100	Accidental poisoning by chlordane
T930300	Accidental poisoning by dieldrin
T930400	Accidental poisoning by endrine
T930500	Accidental poisoning by toxaphene
T931000	Accidental poisoning by demeton
T931100	Accidental poisoning by diazino
T931400	Accidental poisoning by Methyl Parathion
T931400	Accidental poisoning by methyl parathion
T931700	Accidental poisoning by phorate
T931800	Accidental poisoning by phosdrin
T931z00	Accidental poisoning by organophosphorous insecticide
T932.00	Accidental poisoning by carbamates
T932000	Accidental poisoning by aldicarb
T932100	Accidental poisoning by charbaryl
T932200	Accidental poisoning by propoxur
T932z00	Accidental poisoning by carbamates nos
T933.00	Accidental poisoning by mixtures of insecticides (P)
T934000	Accidental poisoning by insecticides of kerosene compounds
T934z00	Accidental poisoning by insecticides nos (P)
T935.00	Accidental poisoning by herbicides (P)
T935000	Accidental poisoning by 2, 4-D
T935300	Accidental poisoning by diquat
T935400	Accidental poisoning by mixtures of herbicides and plant (P)
T935500	Accidental poisoning by paraquat
T935z00	Accidental poisoning by herbicides nos (P)
T936000	Accidental poisoning by organic mercurials
T936100	Accidental poisoning by pentachlorophenol
T937.00	Accidental poisoning by rodenticides (P)
T937200	Accidental poisoning by thallium
T937400	Accidental poisoning by zinc phosphide
T937z00	Accidental poisoning by rodenticides nos (P)
T938000	Accidental poisoning by cyanides
T938100	Accidental poisoning by methyl bromide
T938200	Accidental poisoning by phosphine
T93z.00	Accidental poisoning agricultural chemical preparation
T940.00	Accidental poisoning by corrosive aromatics
T940000	Accidental poisoning by carbolic acid
T940011	Accidental poisoning by phenol
T940z00	Accidental poisoning by corrosive aromatics NOS
T941000	Accidental poisoning by hydrochloric acid
T941100	Accidental poisoning by nitric acid
T941200	Accidental poisoning by sulphuric acid
T941z00	Accidental poisoning by acid nos
T942.00	Accidental poisoning by caustic alkalis (P)
T942000	Accidental poisoning by sodium hydroxide (P)

T942z00	Accidental poisoning by caustic alkalis nos (P)
T94y.00	Accidental poisoning by other corrosives and caustics (P)
T94z.00	Accidental poisoning by corrosives and caustic no (P)
T960.00	Accidental poisoning by lead and its compounds and fumes
T960000	Accidental poisoning by lead, unspecified
T960z00	Accidental poisoning by lead, NOS
T961.00	Accidental poisoning by mercury and its compounds and fumes
T961000	Accidental poisoning by mercury, unspecified
T962.00	Accidental poisoning by antimony and its compounds and fumes
T963.00	Accidental poisoning by arsenic and its compounds
T963000	Accidental poisoning by arsenic, unspecified
T963100	Accidental poisoning by arsenic compounds
T963200	Accidental poisoning by arsenic fumes
T963z00	Accidental poisoning by arsenic, nos
T964.00	Accidental poisoning by other metals + compounds and fumes
T964000	Accidental poisoning by beryllium and its compound
T964200	Accidental poisoning by cadmium and its compounds
T964300	Accidental poisoning by copper salts
T964500	Accidental poisoning by manganese and its compounds
T964600	Accidental poisoning by nickel compounds
T964700	Accidental poisoning by thallium compounds
T964z00	Accidental poisoning by metals and compounds and fumes
T965000	Accidental poisoning by plant food (P)
T965100	Accidental poisoning by fertilisers (P)
T966y00	Accidental poisoning by other adhesives (P)
T980100	Accidental poisoning by butane
T980200	Accidental poisoning by propane
T981000	Accidental poisoning by acetylene
T981100	Accidental poisoning by water gas
T981z00	Accidental poisoning by utility gas nos
T982000	Accidental poisoning by exhaust gas-stationary far
T982100	Accidental poisoning by exhaust gas from gas engine
T982200	Accidental poisoning by exhaust gas from motor pump
T98y.00	Accidental poisoning by carbon monoxide from other (P)
T98y000	Accidental poisoning by CO – blast furnace gas
T98y100	Accidental poisoning by CO – kiln vapour
T98yz00	Accidental poisoning by carbon monoxide from other source (P)
T99..00	Accidental poisoning by other gases and vapours
T99..00	Accidental poisoning by other gases/vapours
T991.00	Accidental poisoning by sulphur dioxide
T992.00	Accidental poisoning by freon
T99y000	Accidental poisoning by chlorine
T99y100	Accidental poisoning by hydrocyanic acid gas
TD10500	Explosion caused by conflagration in factory
TD12000	Carbon monoxide fumes from conflagration in barn
TD13600	Fumes NOS from conflagration in farm outbuilding
TD13A00	Fumes NOS from conflagration in store
TD14500	Smoke NOS from conflagration in factory
TD16000	Accident due to collapse of burning barn

TD16500	Accident due to collapse of burning factory
TD16600	Accident due to collapse of burning farm outbuilding
TD17000	Accident due to fall from burning barn
TD17500	Accident due to fall from burning factory
TD17600	Accident due to fall from burning farm outbuilding
TG30600	Accident caused by explosion of, on or in machine
TG5..00	Accidents caused by explosion of pressure vessel
TG51.00	Accident caused by explosion of gas cylinder
TG51z00	Accident caused by explosion of gas cylinder
TG5z.00	Accident caused by explosion of pressure vessel NOS
TG71.00	Accident caused by blasting materials
TG71000	Accident caused by blasting cap
TG71100	Accident caused by detonator
TG71200	Accident caused by dynamite
TG71300	Accident caused by blasting explosive nos
TG71z00	Accident caused by blasting material nos
TG72000	Accident caused by explosion of acetylene
TG72300	Accident caused by explosion of fire damp
TG72500	Accident caused by explosion of methane
TG72600	Accident caused by explosion of propane
TG72y00	Accident caused by explosion in mine nos
TG7y.00	Accident caused by other explosive materials
TG7y300	Accident caused by explosion of mine
TG7Y700	Accident caused by explosion of munitions factory
TG81000	Accidental burning caused by acid
TG81011	Accidental burning by Hydrofluoric acid
TG81500	Accidental burning caused by hydrofluoric acid
TG8y300	Accidental burning or scalding caused by bitumen or tar
U11M500	[X]Exposure to high-pressure jet occurrence at trade/service area
U11M700	[X]Exposure to high-pressure jet, occurrence on farm

P – Possibly occupational; nos – Not otherwise specified

Appendix 2: Read codes for epilepsy

'*Definite' epilepsy*

Med code	***Read code***	***Read term***
573	F25..00	Epilepsy
988	F251000	Grand mal (major) epilepsy
1715	F250011	Epileptic absences
2907	F250000	Petit mal (minor) epilepsy
3175	F254000	Temporal lobe epilepsy
3607	F25z.11	Fit (in known epileptic) NOS
3783	1473.00	H/O: epilepsy
4093	F253.11	Status epilepticus
4109	SC20000	Traumatic epilepsy
4478	F256.00	Infantile spasms

4602	667B.00	Nocturnal epilepsy
4801	F251300	Epileptic seizures - myoclonic
5117	F253.00	Grand mal status
5152	F251400	Epileptic seizures - tonic
5525	F255011	Focal epilepsy
5668	F251600	Grand mal seizure
6072	282..11	O/E - a convulsion
6271	F25X.00	Status epilepticus, unspecified
6709	Eu05y11	[X]Epileptic psychosis NOS
6983	667..00	Epilepsy monitoring
7275	282..13	O/E - a seizure
7808	1B64.11	Convulsion - symptom
7809	2823.00	O/E - petit mal fit
7811	2822.00	O/E - grand mal fit
7945	F256000	Hypsarrhythmia
8097	2828.00	Absence seizure
8187	F251500	Tonic-clonic epilepsy
8385	2126000	Epilepsy resolved
8487	F132z12	Myoclonic seizure
9085	1B64.00	Had a convulsion
9326	8BIF.00	Epilepsy medication review
9569	F255000	Jacksonian, focal or motor epilepsy
9747	F25z.00	Epilepsy NOS
9886	F252.00	Petit mal status
9887	F25y200	Locl-rlt(foc)(part)idiop epilep&epilptic syn seiz locl onset
9979	F25yz00	Other forms of epilepsy NOS
11015	667F.00	Seizure free >12 months
11186	F250.00	Generalised nonconvulsive epilepsy
11394	F254500	Complex partial epileptic seizure
11454	1B26.00	Trigger factor for seizure
11672	9h61.00	Excepted from epilepsy quality indicators: Patient unsuitable
11712	9h62.00	Excepted from epilepsy quality indicators: Informed dissent
11752	8BL3.00	Patient on maximal tolerated anticonvulsant therapy
12098	2824.12	O/E - focal fit
12811	1JA0.00	Suspected epilepsy
12848	212J.00	Epilepsy resolved
13073	6677.00	Epilepsy drug side effects
13219	667P.00	No seizures on treatment
13220	667D.00	Epilepsy control poor
13221	667R.00	2 to 4 seizures a month
13304	Q480.12	Seizures in newborn
17399	F250400	Juvenile absence epilepsy
18471	F251200	Epileptic seizures - clonic
18899	667T.00	Daily seizures
19170	F25y400	Benign Rolandic epilepsy
19363	F25A.00	Juvenile myoclonic epilepsy
19549	667S.00	1 to 7 seizures a week
19550	667C.00	Epilepsy control good
19551	667E.00	Epilepsy care arrangement

19552	667L.00	Epilepsy does not limit activities
20566	667A.00	Epilepsy treatment stopped
21885	F258.00	Post-ictal state
22341	1O30.00	Epilepsy confirmed
22804	F251011	Tonic-clonic epilepsy
22991	667N.00	Epilepsy severity
23415	F256100	Salaam attacks
23634	F254100	Psychomotor epilepsy
24309	F250200	Epileptic seizures - atonic
25330	F25y300	Complex partial status epilepticus
25865	R003y00	[D]Other specified convulsion
26015	F255.00	Partial epilepsy without impairment of consciousness
26144	F251.00	Generalised convulsive epilepsy
26511	6672.00	Follow-up epilepsy assessment
26512	6678.00	Epilepsy treatment changed
26618	667Q.00	1 to 12 seizures a year
26619	667K.00	Epilepsy limits activities
26620	667G.00	Epilepsy restricts employment
26733	F255y00	Partial epilepsy without impairment of consciousness OS
27526	F255z00	Partial epilepsy without impairment of consciousness NOS
30604	F25B.00	Alcohol-induced epilepsy
30635	F25F.00	Photosensitive epilepsy
31830	F250300	Epileptic seizures - akinetic
31877	Eu05212	[X]Schizophrenia-like psychosis in epilepsy
31920	F254z00	Partial epilepsy with impairment of consciousness NOS
32288	F254.00	Partial epilepsy with impairment of consciousness
32455	9Of..00	Epilepsy screen administration
34079	F254400	Epileptic automatism
34346	9Of0.00	Epilepsy screen invite 1
34362	9Of1.00	Epilepsy screen invite 2
34792	F250500	Lennox-Gastaut syndrome
35217	9N4V.00	DNA - Did not attend epilepsy clinic
36203	F254200	Psychosensory epilepsy
36696	667Z.00	Epilepsy monitoring NOS
37592	F255200	Somatosensory epilepsy
37644	F132100	Progressive myoclonic epilepsy
37782	F251100	Neonatal myoclonic epilepsy
38307	F25y.00	Other forms of epilepsy
38457	282Z.00	O/E - fit/convulsion NOS
38919	1B1W.00	Transient epileptic amnesia
39023	F256.12	West syndrome
39160	667V.00	Many seizures a day
39530	2824.11	O/E - Jacksonian fit
40105	F255600	Simple partial epileptic seizure
40806	F251z00	Generalised convulsive epilepsy NOS
40863	667J.00	Epilepsy impairs education
42606	9Of2.00	Epilepsy screen invite 3
43679	Eu80300	[X]Acquired aphasia with epilepsy [Landau - Kleffner]
44252	F250z00	Generalised nonconvulsive epilepsy NOS

45535	9h6..00	Exception reporting: epilepsy quality indicators
45746	6671.00	Initial epilepsy assessment
45757	9Of3.00	Epilepsy monitoring verbal invite
45927	F251y00	Other specified generalised convulsive epilepsy
46603	667W.00	Emergency epilepsy treatment since last appointment
46947	13Y9.00	Epilepsy society member
48134	F255100	Sensory induced epilepsy
48462	Eu06013	[X]Limbic epilepsy personality
49322	F256z00	Infantile spasms NOS
49340	F251111	Otohara syndrome
49889	ZS82.00	Acquired epileptic aphasia
50702	667H.00	Epilepsy prevents employment
51517	2825.00	O/E - psychomotor fit
51998	F259.11	Ohtahara syndrome
52632	667X.00	No epilepsy drug side effects
53483	F25y100	Gelastic epilepsy
55260	F25y000	Cursive (running) epilepsy
55665	F254300	Limbic system epilepsy
55706	667M.00	Epilepsy management plan given
55739	F255400	Visual reflex epilepsy
56359	F25D.00	Menstrual epilepsy
56455	8CE7.00	Epilepsy leaflet given
59120	Fyu5200	[X]Other status epilepticus
59185	F250y00	Other specified generalised nonconvulsive epilepsy
65673	F25E.00	Stress-induced epilepsy
65699	F255012	Motor epilepsy
68946	F255500	Unilateral epilepsy
69831	Fyu5100	[X]Other epilepsy
71719	F257.00	Kojevnikov's epilepsy
71801	Fyu5900	[X]Status epilepticus, unspecified
73542	F255300	Visceral reflex epilepsy

Possible' epilepsy

Med code	***Read code***	***Read term***
11025	R003200	[D]Fit
1306	R003z11	[D]Seizure NOS
1902	1B63.00	Had a fit
3652	1B63.11	Fit - had one, symptom
17136	282..12	O/E - a fit

Activity codes relating to epilepsy

Entity type	***Description***	***Filetype***	***Category***
28	Epilepsy managed by	Clinical	Epilepsy
86	Fit details	Clinical	Epilepsy
94	Last fit	Clinical	Epilepsy
111	DVLC informed	Clinical	Epilepsy
140	Epilepsy register	Clinical	Disease Registers
186	Phenobarbitone	Test	Biochemistry (Other)

187	Phenytoin	Test	Biochemistry (Other)
205	Valproate	Test	Biochemistry (Other)
161	Carbemazepine	Test	Biochemistry (Other)

Appendix 3: British National Formulary codes for prescriptions issued to subjects with epilepsy

Treatments for epilepsy

Prod code	Product code	Product name	Drugs substance name	Strength	Formulation	BNF header (indications)
107	4466002	phenytoin capsules 25mg	phenytoin sodium	25mg	capsules	Neuropathic pain/Control of epilepsy
209	4596002	primidone oral suspension 250mg/5ml	primidone	250mg/5ml	oral suspension	Control of epilepsy/Essential tremor, chorea, tics & related disorders/Unlicensed medicinal product (specials)
432	2966001	carbamazepine tablets 100mg	carbamazepine	100mg	tablets	Neuropathic pain/Control of epilepsy/Antimanic drug
584	5393001	sodium valproate enteric coated tabs 200mg	sodium valproate	200mg	enteric coated tabs	Control of epilepsy
596	3114001	carbamazepine liquid 100mg/5ml	carbamazepine	100mg/5ml	liquid	Neuropathic pain/Control of epilepsy/Antimanic drug
652	2966003	carbamazepine tablets 400mg	carbamazepine	400mg	tablets	Neuropathic pain/Control of epilepsy/Antimanic drug
1157	4596001	primidone tablets 250mg	primidone	250mg	tablets	Control of epilepsy/Essential tremor, chorea, tics & related
1158	2966002	carbamazepine tablets 200mg	carbamazepine	200mg	tablets	Neuropathic pain/Control of epilepsy/Antimanic drug
1370	4467001	phenytoin capsules 100mg	phenytoin sodium	100mg	capsules	Neuropathic pain/Control of epilepsy
1398	1684003	EPANUTIN capsules 100mg [PFIZER]	phenytoin sodium	100mg	capsules	Neuropathic pain/Control of epilepsy
1399	2796003	phenobarbital tablets 60mg	phenobarbital	60mg	tablets	Control of epilepsy
1550	5431003	sodium valproate syrup 200mg/5ml	sodium valproate	200mg/5ml	syrup	Control of epilepsy
1559	3365001	clonazepam tablets 500 micrograms	clonazepam	500 µgms	tablets	Control of epilepsy
1576	2796002	phenobarbital tablets 30mg	phenobarbital	30mg	tablets	Control of epilepsy
2062	1909002	phenytoin sodium tablets 100mg	phenytoin sodium	100mg	tablets	Neuropathic pain/Control of epilepsy
2073	3365002	clonazepam tablets 2mg	clonazepam	2mg	tablets	Control of epilepsy
2079	4555003	lamotrigine tablets 25mg	lamotrigine	25mg	tablets	Control of epilepsy
2080	4555001	lamotrigine tablets 50mg	lamotrigine	50mg	tablets	Control of epilepsy
2081	7299001	lamotrigine dispersible tablet 5mg	lamotrigine	5mg	dispersible tablet	Control of epilepsy
2082	5591002	EPILIM sugar free liquid 200mg/5ml [SANOFI S]	sodium valproate	200mg/5ml	sugar free liquid	Control of epilepsy
2085	1638002	TEGRETOL tablets 200mg [NOVARTIS]	carbamazepine	200mg	tablets	Neuropathic pain/Control of epilepsy/Antimanic drug
2128	4466003	phenytoin capsules 50mg	phenytoin sodium	50mg	capsules	Neuropathic pain/Control of epilepsy
2388	6420001	carbamazepine modified release tablet 200mg	carbamazepine	200mg	modified release tab	Neuropathic pain/Control of epilepsy/Antimanic drug

2782	1909001	phenytoin sodium tablets 50mg	phenytoin sodium	50mg	tablets	Neuropathic pain/Control of epilepsy
2821	6229001	vigabatrin tablets 500mg	vigabatrin	500mg	tablets	Control of epilepsy
2822	5590002	EPILIM EC tablets 500mg [SANOFI S]	sodium valproate	500mg	EC tablets	Control of epilepsy
2823	6467001	TEGRETOL RETARD controlled release tablet 200mg [NOVARTIS]	carbamazepine	200mg	controlled release tablet	Neuropathic pain/Control of epilepsy/Antimanic drug
2824	6467002	TEGRETOL RETARD controlled release tablet 400mg [NOVARTIS]	carbamazepine	400mg	controlled release tablet	Neuropathic pain/Control of epilepsy/Antimanic drug
3068	4467003	phenytoin capsules 300mg	phenytoin sodium	300mg	capsules	Neuropathic pain/Control of epilepsy
3107	7081003	EPILIM CHRONO controlled release tablet 500mg [SANOFI S]	sodium valproate	500mg	controlled release tablet	Control of epilepsy
3108	3232001	ethosuximide capsules 250mg	ethosuximide	250mg	capsules	Control of epilepsy
3350	5393002	sodium valproate enteric coated tablets 500mg	sodium valproate	500mg	enteric coated tab	Control of epilepsy
3446	1050001	ZARONTIN capsules 250mg [PFIZER]	ethosuximide	250mg	capsules	Control of epilepsy
3569	6420002	carbamazepine modified release tablet 400mg	carbamazepine	400mg	modified release tab	Neuropathic pain/Control of epilepsy/Antimanic drug
3731	5590001	EPILIM EC tablets 200mg [SANOFI S]	sodium valproate	200mg	EC tablets	Control of epilepsy
3733	7081002	EPILIM CHRONO controlled release tablet 300mg [SANOFI S]	sodium valproate	300mg	controlled release tablet	Control of epilepsy
3734	7081001	EPILIM CHRONO controlled release tablet 200mg [SANOFI S]	sodium valproate	200mg	controlled release tablet	Control of epilepsy
3845	5431002	sodium valproate sugar free liquid 200mg/5ml	sodium valproate	200mg/5ml	sugar free liquid	Control of epilepsy
3881	1684002	EPANUTIN capsules 50mg [PFIZER]	phenytoin sodium	50mg	capsules	Neuropathic pain/Control of epilepsy
3886	8534001	lamotrigine tablets 200mg	lamotrigine	200mg	tablets	Control of epilepsy
4066	1638003	TEGRETOL tablets 400mg [NOVARTIS]	carbamazepine	400mg	tablets	Neuropathic pain/Control of epilepsy/Antimanic drug
4175	1341001	EPANUTIN suspension 30mg/5ml [PFIZER]	phenytoin	30mg/5ml	suspension	Neuropathic pain/Control of epilepsy
4195	5590003	EPILIM crushable tablets 100mg [SANOFI S]	sodium valproate	100mg	crushable tablets	Control of epilepsy
4456	616001	MYSOLINE tablets 250mg [ASTRAZENEC]	primidone	250mg	tablets	Epilepsy/Essential tremor, chorea, tics & related
4490	4467002	phenytoin suspension 30mg/5ml	phenytoin	30mg/5ml	suspension	Neuropathic pain/Control of epilepsy
4502	5431001	sodium valproate crushable tablets 100mg	sodium valproate	100mg	crushable tab	Control of epilepsy
4585	6229002	vigabatrin sugar free powder 500mg	vigabatrin	500mg	sugar free powder	Control of epilepsy
4913	1639001	TEGRETOL sugar free liquid 100mg/5ml [NOVARTIS]	carbamazepine	100mg/5ml	sugar free liquid	Neuropathic pain/Control of epilepsy/Antimanic drug
4982	6469001	carbamazepine chewable tablet 100mg	carbamazepine	100mg	chewable tablet	Neuropathic pain/Control of epilepsy/Antimanic drug

5076	4555002	lamotrigine tablets 100mg	lamotrigine	100mg	tablets	Control of epilepsy
5439	2796001	phenobarbital tablets 15mg	phenobarbital	15mg	tablets	Control of epilepsy
5587	9219002	phenytoin sodium capsules 50mg	phenytoin sodium	50mg	capsules	Neuropathic pain/Control of epilepsy
5658	7299002	lamotrigine dispersible tablet 25mg	lamotrigine	25mg	dispersible tablet	Control of epilepsy
5907	7299003	lamotrigine dispersible tablet 100mg	lamotrigine	100mg	dispersible tablet	Control of epilepsy
5956	1050002	ZARONTIN syrup 250mg/5ml [PFIZER]	ethosuximide	250mg/5ml	syrup	Control of epilepsy
5977	1638001	TEGRETOL tablets 100mg [NOVARTIS]	carbamazepine	100mg	tablets	Neuropathic pain/Control of epilepsy/Antimanic drug
6021	7624001	KEPPRA tablets 250mg [UCB]	levetiracetam	250mg	tablets	Control of epilepsy
6022	10789001	levetiracetam tablets 250mg	levetiracetam	250mg	tablets	Control of epilepsy
6047	10789003	levetiracetam tablets 1000mg	levetiracetam	1000mg	tablets	Control of epilepsy
6068	10789002	levetiracetam tablets 500mg	levetiracetam	500mg	tablets	Control of epilepsy
6504	9219003	phenytoin sodium capsules 100mg	phenytoin sodium	100mg	capsules	Neuropathic pain/Control of epilepsy
6560	9494001	sodium valproate modified release tablet 500mg	sodium valproate	500mg	modified release tablet	Control of epilepsy
6594	9223001	phenytoin sodium capsules 300mg	phenytoin sodium	300mg	capsules	Neuropathic pain/Control of epilepsy
6624	9219001	phenytoin sodium capsules 25mg	phenytoin sodium	25mg	capsules	Neuropathic pain/Control of epilepsy
6711	7654001	sodium valproate modified release tablet 300mg	sodium valproate	300mg	modified release tablet	Control of epilepsy
7022	4595001	LAMICTAL tablets 50mg [WELLCOME]	lamotrigine	50mg	tablets	Control of epilepsy
7301	12201001	midazolam buccal solution 10mg/ml	midazolam hydrochloride	10mg/ml	buccal solution	Drugs used in status epilepticus/Unlicensed product
7498	1684001	EPANUTIN capsules 25mg [PFIZER]	phenytoin sodium	25mg	capsules	Neuropathic pain/Control of epilepsy
9281	7082001	sodium valproate with valproic acid modified release tablet 200mg	sodium valproate	200mg	modified release tablet	Control of epilepsy
9678	7187001	phenytoin sugar-free suspension 90mg/5ml	phenytoin	90mg/5ml	sugar-free suspension	Neuropathic pain/Control of epilepsy/Unlicensed
10092	12893001	MYSOLINE tablets 250mg [ACORUS]	primidone	250mg	tablets	Epilepsy,/Essential tremor, chorea, tics & related
10247	7624002	KEPPRA tablets 500mg [UCB]	levetiracetam	500mg	tablets	Control of epilepsy
10263	2485001	EPANUTIN capsules 300mg [PFIZER]	phenytoin sodium	300mg	capsules	Neuropathic pain/Control of epilepsy
10705	6230001	SABRIL tablets 500mg [AVENTIS]	vigabatrin	500mg	tablets	Control of epilepsy
11075	7082003	sodium valproate with valproic acid modified release tablet 500mg	sodium valproate	500mg	modified release tablet	Control of epilepsy
11696	6469002	carbamazepine chewable tablet 200mg	carbamazepine	200mg	chewable tablet	Neuropathic pain/Epilepsy/Antimanic drugs
11715	12803001	levetiracetam tablets 750mg	levetiracetam	750mg	tablets	Control of epilepsy
11873	13153001	zonisamide capsules 25mg	zonisamide	25mg	capsules	Control of epilepsy

12880	6468002	TEGRETOL CHEWTAB tablets 200mg [NOVARTIS]	carbamazepine	200mg	tablets	Neuropathic pain/Control of epilepsy/Antimanic drug
13825	10590001	tiagabine tablets 5mg	tiagabine hydrochloride monohydrate	5mg	tablets	Control of epilepsy
14857	4466001	phenytoin paediatric tablets 50mg	phenytoin	50mg	paediatric tablets	Neuropathic pain/Control of epilepsy
15030	616002	MYSOLINE oral suspension 250mg/5ml [ASTRAZENEC]	primidone	250mg/5ml	oral suspension	Epilepsy/Essential tremor, chorea, tics /Unlicensed
15227	7624003	KEPPRA tablets 1000mg [UCB]	levetiracetam	1000mg	tablets	Control of epilepsy
15338	13155001	zonisamide capsules 100mg	zonisamide	100mg	capsules	Control of epilepsy
19500	13154001	zonisamide capsules 50mg	zonisamide	50mg	capsules	Control of epilepsy
35024	15329001	sodium valproate modified release capsules 300mg	sodium valproate	300mg	modified release capsules	Control of epilepsy
38939	16519001	EPILIM EC tablets 200mg [SANOFI S]	sodium valproate	200mg	tablets	Control of epilepsy
38949	16520001	EPILIM EC tablets 500mg [SANOFI S]	sodium valproate	500mg	tablets	Control of epilepsy
39039	16678001	sodium valproate modified release tablet 200mg	sodium valproate	200mg	modified release tablet	Control of epilepsy

Treatments potentially used for epilepsy

46	2783001	diazepam tablets 2mg	diazepam	2mg	tablets	Hypnotics/Anxiolytics/Epilepsy/Muscle relaxants/ Anaesthetics
47	2783002	diazepam tablets 5mg	diazepam	5mg	tablets	Hypnotics/Anxiolytics/Epilepsy/Muscle relaxants/ Anaesthetics
660	5164001	gabapentin capsules 100mg	gabapentin	100mg	capsules	Neuropathic pain/Control of epilepsy
790	12591001	pregabalin capsules 25mg	pregabalin	25mg	capsules	Neuropathic pain/Control of epilepsy
795	8955002	topiramate capsules 15mg	topiramate	15mg	capsules	Prophylaxis of migraine/Control of epilepsy
819	12593001	pregabalin capsules 75mg	pregabalin	75mg	capsules	Neuropathic pain/Control of epilepsy
1400	2783003	diazepam tablets 10mg	diazepam	10mg	tablets	Hypnotics/Anxiolytics/Epilepsy/Muscle relaxants/ Anaesthetics
1584	5164002	gabapentin capsules 300mg	gabapentin	300mg	capsules	Neuropathic pain/Control of epilepsy
2078	294001	DIAZEPAM RECTUBES rectal tubes 5mg [CP PHARM]	diazepam	5mg	rectal tubes	Anxiolytics/ status epilepticus/Muscle relaxants/ Anaesthetics / Febrile fits
2083	294002	DIAZEPAM RECTUBES rectal tubes 10mg [CP PHARM]	diazepam	10mg	rectal tubes	Anxiolytics/ status epilepticus/Muscle relaxants/ Anaesthetics / Febrile fits
2352	2784001	diazepam elixir 2mg/5ml	diazepam	2mg/5ml	elixir	Hypnotics/Anxiolytics/Epilepsy/Muscle relaxants/ Anaesthetics
2551	3011001	acetazolamide tablets 250mg	acetazolamide	250mg	tablets	Carbonic anhydrase inhibitors (incl glaucoma)/Control of epilepsy
3110	3351001	clobazam capsules 10mg	clobazam	10mg	capsules	Anxiolytics/Control of epilepsy
3111	3351002	clobazam tablets 10mg	clobazam	10mg	tablets	Anxiolytics/Control of epilepsy
3205	3590003	diazepam capsules 5mg	diazepam	5mg	capsules	Hypnotics/Anxiolytics/Epilepsy/Muscle relaxants/ Anaesthetics)

3265	1671001	DIAMOX tablets 250mg [WYETH PHAR]	acetazolamide	250mg	tablets	Carbonic anhydrase inhibitors (incl glaucoma)/Control of epilepsy
3870	3590002	diazepam capsules 2mg	diazepam	2mg	capsules	Anxiolytics/ status epilepticus/Muscle relaxants/ Anaesthetics
4176	3592002	diazepam rectal tubes 10mg	diazepam	10mg	rectal tubes	Anxiolytics/ status/Muscle relaxants/ Anaesthetics /Febrile fits
4395	2466001	STESOLID rectal tubes 5mg [ACTAVIS]	diazepam	5mg	rectal tubes	Anxiolytics/ status /Muscle relaxants/ Anaesthetics /Febrile fits
4781	5164003	gabapentin capsules 400mg	gabapentin	400mg	capsules	Neuropathic pain/Control of epilepsy
5221	1010001	gabapentin tablets 600mg	gabapentin	600mg	tablets	Neuropathic pain/Control of epilepsy
5830	11603001	topiramate capsules 50mg	topiramate	50mg	capsules	Prophylaxis of migraine/Control of epilepsy
5874	8955003	topiramate capsules 25mg	topiramate	25mg	capsules	Prophylaxis of migraine/Control of epilepsy
5893	1071001	DIAMOX tablets 250mg [GOLDSHIELD]	acetazolamide	250mg	tablets	Carbonic anhydrase inhibitors (incl glaucoma)/Control of epilepsy
6304	5165002	NEURONTIN capsules 300mg [PFIZER]	gabapentin	300mg	capsules	Neuropathic pain/Control of epilepsy
6584	12600001	LYRICA capsules 75mg [PFIZER]	pregabalin	75mg	capsules	Neuropathic pain/Control of epilepsy
6631	12595001	pregabalin capsules 150mg	pregabalin	150mg	capsules	Neuropathic pain/Control of epilepsy
6747	3592001	diazepam rectal tubes 5mg	diazepam	5mg	rectal tubes	Anxiolytics/ status /Muscle relaxants/ Anaesthetics /Febrile fits
6820	8949002	topiramate tablets 100mg	topiramate	100mg	tablets	Prophylaxis of migraine/Control of epilepsy
6936	12592001	pregabalin capsules 50mg	pregabalin	50mg	capsules	Neuropathic pain/Control of epilepsy
6999	12594001	pregabalin capsules 100mg	pregabalin	100mg	capsules	Neuropathic pain/Control of epilepsy
7005	12597001	pregabalin capsules 300mg	pregabalin	300mg	capsules	Neuropathic pain/Control of epilepsy
7073	8949001	topiramate tablets 50mg	topiramate	50mg	tablets	Prophylaxis of migraine/Control of epilepsy
7108	8949003	topiramate tablets 200mg	topiramate	200mg	tablets	Prophylaxis of migraine/Control of epilepsy
7208	12601001	LYRICA capsules 100mg [PFIZER]	pregabalin	100mg	capsules	Neuropathic pain/Control of epilepsy
7209	12599001	LYRICA capsules 50mg [PFIZER]	pregabalin	50mg	capsules	Neuropathic pain/Control of epilepsy
7538	1010002	gabapentin tablets 800mg	gabapentin	800mg	tablets	Neuropathic pain/Control of epilepsy
8334	3591002	diazepam suppository 10mg	diazepam	10mg	suppository	Anxiolytics/ status /Muscle relaxants/ Anaesthetics /Febrile fits
8345	2466002	STESOLID rectal tubes 10mg [ACTAVIS]	diazepam	10mg	rectal tubes	Anxiolytics/ status /Muscle relaxants/ Anaesthetics /Febrile fits
8487	377001	FRISIUM capsules 10mg [AVENTIS]	clobazam	10mg	capsules	Anxiolytics/Control of epilepsy
9045	7185001	diazepam suspension 1mg/5ml	diazepam	1mg/5ml	suspension	Anxiolytics/ status epilepticus/Muscle relaxants/ Anaesthetics
9430	7185002	diazepam suspension 2.5mg/5ml	diazepam	2.5mg/5ml	suspension	Anxiolytics/ status /Muscle relaxants/ Anaesthetics/Unlicensed
9823	8954001	TOPAMAX tablets 25mg [JANSSEN]	topiramate	25mg	tablets	Prophylaxis of migraine/Control of epilepsy
11237	8955001	topiramate tablets 25mg	topiramate	25mg	tablets	Prophylaxis of migraine/Control of epilepsy
12124	7141002	diazepam injection (solution)	diazepam	10mg/2ml	injection	Anxiolytics/ status /Muscle relaxants/ Anaesthetics /Febrile fits

		10mg/2ml			(solution)	
13890	8948003	TOPAMAX tablets 200mg [JANSSEN]	topiramate	200mg	tablets	Prophylaxis of migraine/Control of epilepsy
16509	12602001	LYRICA capsules 150mg [PFIZER]	pregabalin	150mg	capsules	Neuropathic pain/Control of epilepsy
16542	12598001	LYRICA capsules 25mg [PFIZER]	pregabalin	25mg	capsules	Neuropathic pain/Control of epilepsy
18211	13514001	gabapentin oral solution 250mg/5ml	gabapentin	250mg/5ml	oral solution	Neuropathic pain/Control of epilepsy/Unlicensed

Appendix 4: Medical codes used in the diagnosis of diabetes

Code	*Read term*
13194	Diabetes monitoring 1st letter
9897	Diabetes monitoring admin
7563	Diabetic on diet only
3550	Diabetic monitoring
12030	Diabetes monitoring 3rd letter
6125	Diabetic annual review
711	Diabetes mellitus
4513	Non-insulin dependent diabetes mellitus
9958	Hb. A1C - diabetic control
12675	Diabetes: shared care programme
14049	Hb. A1C - diabetic control NOS
17859	Type 2 diabetes mellitus
758	Type 2 diabetes mellitus
608	Follow-up diabetic assessment
13196	Fundoscopy - diabetic check
8836	Diabetes management plan given
13057	Health education - diabetes
1549	Type 1 diabetes mellitus
8842	Diabetic on insulin
12307	Diabetes care by hospital only
10977	Diabetic peripheral neuropathy screening
31241	Diabetes monitoring admin.NOS
12506	Diabetes: practice programme
1038	Insulin dependent diabetes mellitus
22823	Diabetic foot examination
18311	Diabetic retinopathy screening
13071	Diabetic - good control
11094	Under care of diabetic foot screener
38078	Understands diet - diabetes
2379	Seen in diabetic clinic
14889	Maturity onset diabetes
14803	Diabetes mellitus, adult onset, no mention of complication
13197	Attends diabetes monitoring
20900	Diabetes monitored
2378	Diabetic - poor control
5884	NIDDM - Non-insulin dependent diabetes mellitus
18066	Diabetic leaflet given
506	Non-insulin dependent diabetes mellitus
1684	Diabetic on oral treatment
21689	Diabetic lipid lowering diet
6430	Attending diabetes clinic
6813	H/O: diabetes mellitus
13192	Diabetes monitor. check done

13191	Diabetes clinic administration
13069	Has seen dietician - diabetes
13074	Diabetic diet
12213	Patient on maximal tolerated therapy for diabetes
20696	Injection sites - diabetic
1323	Diabetic retinopathy
1682	Diabetes mellitus with ketoacidosis
11129	O/E - left eye background diabetic retinopathy
7069	Background diabetic retinopathy
7777	Referral to diabetologist
18505	IDDM-Insulin dependent diabetes mellitus
11433	O/E - right eye background diabetic retinopathy
14050	HbA1 - diabetic control
13070	Initial diabetic assessment
8414	Pt advised re diabetic diet
16490	Diabetic treatment changed
2475	Diabetic nephropathy
18167	Annual diabetic blood test
17858	Type 1 diabetes mellitus
8403	Non-insulin dependent diabetes mellitus - poor control
13100	O/E - no right diabetic retinopathy
11348	Excepted from diabetes quality indicators: Informed dissent
13104	O/E - no left diabetic retinopathy
2478	Brittle diabetes
13097	O/E - right eye proliferative diabetic retinopathy
13108	O/E - left eye diabetic maculopathy
26666	O/E - Right diabetic foot at low risk
3837	Diabetic maculopathy
26667	O/E - Left diabetic foot at low risk
13067	Diabetic monitoring NOS
15690	Diabetes mellitus with ketoacidotic coma
2340	Diabetic amyotrophy
13195	Diabetes monitoring 2nd letter
12262	Diabetic retinopathy screening refused
61021	Diabetic digital retinopathy screening offered
16230	Diabetes mellitus with neurological manifestation
16881	[V]Dietary counselling in diabetes mellitus
8306	Referral to diabetes nurse
50175	Diabetic foot risk assessment
11471	Diabetes medication review
2342	Diabetic neuropathy
8618	Seen by diabetic liaison nurse
12247	Diabetic foot examination not indicated
11041	Excepted from diabetes qual indicators: Patient unsuitable
18824	Diabetic foot examination declined
30648	Did not attend diabetic retinopathy clinic

9145	DNA - Did not attend diabetic clinic
13078	Diabetic weight reducing diet
10692	Type 1 diabetes mellitus with ketoacidosis
12225	Refer, diabetic liaison nurse
7795	Diabetes mellitus with neuropathy
3286	Proliferative diabetic retinopathy
22023	Diabetic - poor control NOS
16502	Diabetes mellitus with renal manifestation
93380	Cystic fibrosis related diabetes mellitus
22130	Diabetes monitoring default
11677	Refer to diabetic foot screener
1647	Insulin dependent diabetes mellitus
18390	Type 2 diabetes mellitus with persistent microalbuminuria
9974	Seen in diabetic eye clinic
10824	Seen in diabetic foot clinic
28574	Exception reporting: diabetes quality indicators
18219	Type II diabetes mellitus

Appendix 5: Treatments employed by diabetics

Code	*Name*
1647	Diabur Test 5000 strips [ROCHE DIAG]
32	gliclazide tablets 80mg
1445	Diastix strips [BAYER]
6053	Optium Plus biosensor strips [ABBOTT]
1185	ExacTech biosensor strips [MEDISENSE]
7318	HUMALOG CARTRIDGE injection solution 100 units/ml [LILLY]
1592	ACTRAPID PENFILL 100 iu/ml [NOVO]
33966	INSULATARD injection 100 units/ml [NOVO]
5142	BD Micro-Fine Plus screw on pen needle 8mm/31gauge [BECTON]
1588	ACTRAPID injection 100 iu/ml [NOVO]
1256	BM-Accutest colorimetric strips [ROCHE DIAG]
7402	LANTUS VIAL injection solution 100 units/ml [AVENTIS]
9260	BD Micro-Fine Plus type A lancet-sterile single use 0.36mm/28gauge [BECTON]
7237	LANTUS OPTISET injection solution 100 units/ml [AVENTIS]
1344	Clinistix strips [BAYER]
4929	Softclix type C lancet-sterile single use 0.4mm/28gauge [ROCHE DIAG]
23	metformin tablets 500mg
5286	Advantage II biosensor strips [ROCHE DIAG]
9699	pioglitazone tablets 30mg
5213	Glucotrend Plus colorimetric strips [ROCHE DIAG]
5532	Active colorimetric strips [ROCHE DIAG]
5902	Albustix strips [BAYER]
1844	ULTRATARD injection 100 units/ml [NOVO]
1589	u100 single use insulin syringe with 12mm needle(26G) 0.5ml

1779	Unilet G Superlite type A lancet-sterile single use 0.66mm/23gauge [OWEN]
11086	B-D U-100 single use insulin syringe 0.5ml 29g [BECTON]
1194	Medisense G2 biosensor strips [ABBOTT]
4730	Monolet type A lancet-sterile single use 0.8mm/21gauge [COVIDIEN]
2929	MIXTARD 30 ge injection 100 iu/ml [NOVO]
1343	BM-Test 1-44 colorimetric strips [ROCHE DIAG]
1596	Ketostix strips [BAYER]
4138	Milward Steri-Let type A lancet-sterile single use 0.66mm/23gauge [ENTACO]
9556	Clinitest Urine Sugar Analysis set [BAYER]
1272	Glucostix strips [BAYER]
2809	Unilet type B lancet-sterile single use [OWEN]
5636	glipizide tablets 5mg
1274	Glucotrend colorimetric strips [ROCHE DIAG]
1275	Softclix lancet-sterile single use 0.8mm/21gauge [ROCHE DIAG]
5353	glimepiride tablets 2mg
1810	Glucotide colorimetric strips [BAYER]
5402	Unilet General Purpose Superlite type A lancet-sterile single use 0.66mm/23gauge [OWEN]
1965	tolbutamide tablets 500mg
469	rosiglitazone tablets 4mg
11717	rosiglitazone with metformin tablets 2mg + 1000mg
7325	AVANDAMET tablets 4mg + 1000mg [GLAXSK PHA]
31077	COMPETACT film coated tablets [TAKEDA]
5495	Microlet Type A sterile single use lancets 0.5mm/28gauge [BAYER]
6840	Contour biosensor strips [BAYER]
1254	glibenclamide tablets 5mg
93	metformin tablets 850mg
1886	INSULATARD ge injection 100 iu/ml [NOVO]
7284	AMARYL tablets 2mg [AVENTIS]
11284	AMARYL tablets 4mg [AVENTIS]
7409	AMARYL tablets 3mg [AVENTIS]
12897	guar gum sachets 5g/sachet
7912	SEMI-DAONIL tablets 2.5mg [AVENTIS]
7610	GLUCOPHAGE tablets 850mg [MERCK SER]
4198	HUMULIN M3 injection 100 units/ml [LILLY]
1591	u100 single use insulin syringe with 12mm needle(26G) 1ml
7744	DAONIL tablets 5mg [AVENTIS]
8895	INITARD 50/50 injection 100 units/ml [NOVO]
1587	MONOTARD injection 100 units/ml [NOVO]
2503	syringe ordinary purpose spec 16[2a] 1ml
7772	HUMAN PROTAPHANE injection 100 units/ml [NOVO]
1751	u100 insulin syringe 1ml
1806	PENMIX 30/70 PENFILL injection 100 iu/ml [NOVO]
479	acarbose tablets 50mg
804	glucagon injection 1mg
1593	INSULATARD PENFILL 100 iu/ml [NOVO]

7771	HUMAN PROTAPHANE PENFILL 100 units/ml [NOVO]
5763	One Touch Ultra biosensor strips [LIFESCAN]
6057	LANTUS injection 100 iu/ml [AVENTIS]
5021	NOVORAPID PENFILL injection solution 100 units/ml [NOVO]
5015	Novofine screw on pen needle 8mm/30gauge [NOVO]
9363	u100 insulin syringe 0.5ml
7266	LANTUS CARTRIDGE injection solution 100 units/ml [AVENTIS]
5059	Novopen 3 classic insulin pen 3ml/2-70 units [NOVO]
6470	Autopen 24 insulin pen 3ml/2-42 units [OWEN]
6554	Autopen 24 insulin pen 3ml/1-21 units [OWEN]
5022	Novofine screw on pen needle 12mm/28gauge [NOVO]
5958	One Touch Ultrasoft type A lancets [LIFESCAN]
1840	HUMULIN S injection 100 units/ml [LILLY]
5557	Novopen 3 fun - blue insulin pen 3ml/2-70 units [NOVO]
6091	Novopen 3 fun - red insulin pen 3ml/2-70 units [NOVO]
4774	Unilet Universal Comfortouch type A & B lancet-sterile single use 0.45mm/26gauge [OWEN]
1800	Ames type B lancet-sterile single use 0.5mm/25gauge [BAYER]
1805	MIXTARD 30/70 injection 100 units/ml [NOVO]
5706	needle clipping device
1644	Clinitest tablets [BAYER]
1273	Monolet type A lancet-sterile single use 0.8mm/21gauge [SHERWOOD]
6233	Penfine snap on pen needle 10mm/29gauge [YPSOMED AG]
5953	insulin glargine injection 100 iu/ml
12892	Clinipak U100 single use insulin syringe with 12mm needle(28G) 0.5ml [RAND]
5174	acarbose tablets 100mg
5726	Unilet General Purpose type A lancet-sterile single use 0.38mm/28gauge [OWEN]
5507	Medisense Optium biosensor strips [ABBOTT]
7267	NOVOMIX 30 PENFILL injection suspension 100 units/ml [NOVO]
12676	general purpose lancet-sterile single use
5583	Unilet General Purpose type A lancet-sterile single use 0.81mm/21gauge [OWEN]
1649	HUMAN ACTRAPHANE injection 100 iu/ml [NOVO]
2219	glibenclamide tablets 2.5mg
2374	One Touch colorimetric strips [LIFESCAN]
13516	HYPURIN BOVINE ISOPHANE injection 100 units/ml [CP PHARM]
12297	HYPURIN BOVINE NEUTRAL injection 100 units/ml [CP PHARM]
13819	HYPURIN PORCINE ISOPHANE injection 100 units/ml [CP PHARM]
5666	Prestige Smart System colorimetric strips [DIAGNO MED]
4715	HUMALOG MIX 25 injection 25:75; 100 units/ml [LILLY]
6138	Humapen Ergo burgundy insulin pen 3ml/1-60 units [LILLY]
5990	Compact Colorimetric test strips [ROCHE DIAG]
5932	Unilet Comfortouch type A & B lancets 0.375mm/28gauge [OWEN]
7695	GUAREM sachets [SHIRE]
2454	MIXTARD 30 PENFILL 100 iu/ml [NOVO]
3076	Novofine pen needle 6mm/30gauge [NOVO]
4362	GLUCAGON NOVO injection 1mg [NOVO]

4199	HUMULIN M1 injection 100 units/ml [LILLY]
4844	BD Micro-Fine Plus type A lancet-sterile single use 0.30mm/30gauge [BECTON]
4361	glucose infusion 50%
2221	MIXTARD 30 NOVOLET 100 iu/ml [NOVO]
5421	Novofine screw on pen needle 6mm/31gauge [NOVO]
2024	Micro-Fine lancet-sterile single use [BECTON]
5255	MIXTARD 10 PENFILL 100 iu/ml [NOVO]
16969	YENTREVE gastro-resistant capsules 20mg [LILLY]
14849	CYMBALTA gastro-resistant capsules 60mg [LILLY]
547	glipizide tablets 2.5mg
5342	GlucoMen Sensors biosensor strips [MENARINI]
5983	GlucoMen (Fine) type A lancets 0.45mm/26gauge [MENARINI]
6895	duloxetine gastro-resistant capsules 60mg
7166	GLUCOPHAGE tablets 500mg [MERCK SER]
5227	rosiglitazone tablets 8mg
6014	One Touch Fine Point type A lancet-sterile single use 0.5mm/25gauge [LIFESCAN]
10051	pioglitazone tablets 45mg
35149	exenatide injection 10micrograms
35251	exenatide injection 5 micrograms
1964	DIAMICRON tablets 80mg [SERVIER]
3550	MIXTARD 40 PENFILL 100 iu/ml [NOVO]
11107	HUMULIN M4 injection 100 units/ml [LILLY]
4831	Pocket Scan biosensor strips [LIFESCAN]
4093	HUMULIN M2 injection 100 units/ml [LILLY]
3551	MIXTARD 20 PENFILL 100 iu/ml [NOVO]
7179	Ascensia Autodisc biosensor discs [BAYER]
322	HUMALOG injection 100 iu/ml [LILLY]
4760	HUMULIN I injection 100 units/ml [LILLY]
5789	u100 single use insulin syringe with 8mm needle(30G) 0.5ml
5850	Penfine snap on pen needle 6mm/31gauge [YPSOMED AG]
6224	Freestyle type A lancets 0.5mm/25gauge [ABBOTT]
5961	Freestyle biosensor strips [ABBOTT DC]
1594	ACTRAPID NOVOLET 100 iu/ml [NOVO]
7645	Ketur Test strips [ROCHE DIAG]
7124	Aviva biosensor strips [ROCHE DIAG]
14290	INSULATARD PENFILL injection suspension 100 units/ml [NOVO]
7220	GLUCOGEL gel [BRIT BIO]
4706	VELOSULIN VIAL injection solution 100 units/ml [NOVO]
7125	Multiclix lancet-sterile single use 0.3mm/30gauge [ROCHE DIAG]
5680	B-D Safe Clip needle clip [BECTON]
7183	Advantage Plus biosensor strips [ROCHE DIAG]
5293	Unilet Superlite type B lancet-sterile single use 0.66mm/23gauge [OWEN]
4813	GLUCAGEN Hypokit 1mg [NOVO]
6228	BD Micro-Fine Plus single use insulin syringe with 8mm needle(30G) 0.3ml [BECTON]
9702	BD Micro-Fine Plus single use insulin syringe with 12mm needle(29G) 1ml [BECTON]
6005	glucose oral gel 40%

17706 MINODIAB tablets 2.5mg [PHARMACIA]
5814 Medisense Soft-Sense biosensor strips [ABBOTT]
4156 HYPOSTOP gel [BIO-DIAG]
11345 BD Ultra Pen insulin pen 3.0ml [BECTON]
9662 AVANDIA tablets 4mg [GLAXSK PHA]
6415 Thin type A lancets 0.36mm/28gauge [ABBOTT]
16044 GLUCOPHAGE SR tablets 500mg [MERCK SER]
7029 sharps bin container 1 litre
9865 repaglinide tablets 500 micrograms
5892 NOVORAPID FLEXPEN injection solution 100 units/ml [NOVO]
10258 pen injector screw on hypodermic needle 8mm/31gauge
9707 repaglinide tablets 1mg
9748 repaglinide tablets 2mg
4473 syringe ordinary purpose spec 16[2a] 2ml
4619 Monolet Extra type A lancet-sterile single use 0.8mm/21gauge [COVIDIEN]
5873 BD Micro-Fine Plus screw on pen needle 5mm/31gauge [BECTON]
4998 Ascensia Glucodisc biosensor discs [BAYER]
1595 INSULATARD NOVOLET 100 iu/ml [NOVO]
6958 LEVEMIR FLEXPEN injection solution 100 iu/ml [NOVO]
5316 glimepiride tablets 4mg
5276 glimepiride tablets 1mg
11936 Sharpsguard orange container 1 litre [DANIELS]
36562 Freestyle Lite biosensor strips [ABBOTT DC]
4249 Dextrostix colorimetric strips [BAYER]
5627 gliclazide modified release tablet 30mg
14164 AVANDAMET tablets 2mg + 1000mg [GLAXSK PHA]
548 pioglitazone tablets 15mg
7048 metformin modified release tablet 500mg
6061 NOVOMIX 30 injection 30:70; 100 units/ml [NOVO]
5966 Penfine snap on pen needle 8mm/31gauge [YPSOMED AG]
1842 PORK VELOSULIN injection 100 units/ml [NOVO]
1843 PORK INSULATARD VIAL injection suspension 100 units/ml [NOVO]
7537 HUMULIN ZN injection 100 units/ml [LILLY]
7228 NOVOMIX 30 FLEXPEN injection suspension 100 units/ml [NOVO]
6965 LEVEMIR PENFILL injection solution 100 units/ml [NOVO]
2459 PORK MIXTARD 30 VIAL injection suspension 100 units/ml [NOVO]
10175 insulin isophane human pyr injection 100 iu/ml
10184 insulin detemir injection solution 100 iu/ml
9578 Unifine Pentips screw on pen needle 12mm/29gauge [OWEN]
5962 Humapen injection device [LILLY]
1253 chlorpropamide tablets 100mg
38808 NovoPen 4 silver insulin pen 3ml/1-60 units [NOVO]
6730 u100 single use insulin syringe with 12mm needle(29G) 1ml
2455 MIXTARD 20 NOVOLET 100 iu/ml [NOVO]
2812 MIXTARD 40 NOVOLET 100 iu/ml [NOVO]
9105 GLUCOBAY tablets 100mg [BAYER]

4790	MIXTARD 50 PENFILL 100 iu/ml [NOVO]
5621	GLUCOBAY tablets 50mg [BAYER]
10001	HUMALOG MIX 50 DISPOSABLE PEN injection suspension 100 units/ml [LILLY]
2409	Supreme colorimetric strips [HYPOGUARD]
5121	BD Micro-Fine Plus screw on pen needle 12.7mm/29gauge [BECTON]

Appendix 6: Read codes for mental health conditions

Med code	*Read code*	*Read term*
NEUROSIS		
276	E28..00	Acute reaction to stress
1131	E204.00	Neurotic depression reactive type
543	Eu32z11	[X]Depression NOS
636	E200.00	Anxiety states
131	1B13.00	Anxiousness
1996	1B17.00	Depressed
1900	R2y3.00	[D]Debility, unspecified
966	E207.00	Hypochondriasis
3208	E203.00	Obsessive-compulsive disorders
22019	Eu42100	[X]Predominantly compulsive acts [obsessional rituals]
2030	E203100	Obsessional neurosis
1908	2257	O/E - depressed
23354	E201z00	Hysteria NOS
21836	Eu42.12	[X]Obsessive-compulsive neurosis
7953	Eu34100	[X]Dysthymia
655	E200300	Anxiety with depression
4537	1B1B.11	C/O - insomnia
2524	1BK..00	Worried
4824	1B17.11	C/O - feeling depressed
1758	E200400	Chronic anxiety
462	E200111	Panic attack
514	1B12.12	Tension - nervous
4639	Eu32.00	[X]Depressive episode
1582	E205.11	Nervous exhaustion
2100	R060100	[D]Hyperventilation
4069	E200100	Panic disorder
5902	1B13.11	Anxiousness - symptom
4863	28B..00	O/E - easily distractable
3586	1B12.11	Nerves
1712	1BD1.00	Suicidal ideation
3667	1B15.00	Irritable
19696	Eu33.12	[X]Recurrent episodes of psychogenic depression
1149	225A.00	O/E - irritable
3881	1B16.00	Agitated
2913	1B...00	Nervous system symptoms

4534	E200z00	Anxiety state NOS
1449	1B1J.00	Emotional problem
3502	1B1J.11	Emotional upset
4167	E202A00	Fear of flying
1533	E290.00	Brief depressive reaction
4659	E200200	Generalised anxiety disorder
2147	1B1N.00	Poor self esteem
2300	E202000	Phobia unspecified
16638	E202.11	Social phobic disorders
12838	E202200	Agoraphobia without mention of panic attacks
791	E20z.11	Nervous breakdown
2930	1B17.12	C/O - feeling unhappy
4143	E201612	Globus hystericus
9211	Eu32100	[X]Moderate depressive episode
8205	Eu41000	[X]Panic disorder [episodic paroxysmal anxiety]
5385	Eu41.00	[X]Other anxiety disorders
9536	1B1D.11	Nightmares - symptom
21305	1B1B.00	Cannot sleep - insomnia
3076	E202100	Agoraphobia with panic attacks
8215	R00zA00	[D]Physical violence
8851	Eu33.11	[X]Recurrent episodes of depressive reaction
9785	Eu40200	[X]Specific (isolated) phobias
9581	Eu50200	[X]Bulimia nervosa
1907	E202.00	Phobic disorders
15431	E201600	Other conversion disorder
19129	1B1H.00	Frightened
29520	Eu33100	[X]Recurrent depressive disorder, current episode moderate
1525	E22z.00	Psychosexual disorder NOS
2585	1B14.11	Tenseness - symptom
5719	1B1L.00	Stress related problem
5305	E206.00	Depersonalisation syndrome
5811	1B16.11	Agitated - symptom
3361	E205.00	Neurasthenia - nervous debility
4171	Eu43100	[X]Post - traumatic stress disorder
3292	Eu33.00	[X]Recurrent depressive disorder
2775	E290000	Grief reaction
4067	1BD3.00	Suicidal plans
10344	Eu41100	[X]Generalized anxiety disorder
2826	E29..00	Adjustment reaction
13122	225B.00	O/E - angry
2970	Eu32z00	[X]Depressive episode, unspecified
13124	2258	O/E - anxious
9386	Eu40.00	[X]Phobic anxiety disorders
8408	1B1C.00	Sexual symptom
11913	Eu41200	[X]Mixed anxiety and depressive disorder
2777	R2y3.11	[D] Self neglect

2509	R2y2.00	[D]Nervousness
7724	R00z800	[D]Irritability and anger
21431	Eu46z11	[X]Neurosis NOS
11336	Eu43200	[X]Adjustment disorders
52161	Eu44.12	[X]Conversion reaction
5589	1BD4.00	Suicide risk
8123	1B1O.00	Restless
4634	E200500	Recurrent anxiety
34696	E201400	Hysterical paralysis
11602	Eu40100	[X]Social phobias
7222	Eu40z11	[X]Phobia NOS
5249	E20..00	Neurotic disorders
2366	E202C00	Dental phobia
23808	Eu4..00	[X]Neurotic, stress - related and somoform disorders
25638	Eu41z11	[X]Anxiety NOS
6939	E200000	Anxiety state unspecified
14780	E20z.00	Neurotic disorder NOS
4269	E201700	Hysterical amnesia
29608	1B12.00	Nerves - nervousness
1694	284..00	O/E - disorientated
9944	E202.12	Phobic anxiety
2831	1B1I.00	Crying, excessive
15321	E20y000	Somatization disorder
20163	1B1H.12	Apprehension
2571	Eu40000	[X]Agoraphobia
14729	E202z00	Phobic disorder NOS
18399	Eu42200	[X]Mixed obsessional thoughts and acts
3291	Eu32z12	[X]Depressive disorder NOS
23838	Eu41z00	[X]Anxiety disorder, unspecified
6142	1B15.11	Irritable - symptom
28302	E292312	Specific work inhibition
9504	1B19.11	Suicidal - symptom
15437	1B19.00	Suicidal
1723	E202800	Claustrophobia
12635	Eu40214	[X]Simple phobia
16817	E2D..00	Disturbance of emotion specific to childhood and adolescence
6583	Eu50211	[X]Bulimia NOS
7899	2253	O/E - distressed
8902	Eu33.13	[X]Recurrent episodes of reactive depression
9055	Eu32.11	[X]Single episode of depressive reaction
5304	Eu42.00	[X]Obsessive - compulsive disorder
16729	Eu40011	[X]Agrophobia without history of panic disorder
22136	Eu44.00	[X]Dissociative [conversion] disorders
11717	Eu32000	[X]Mild depressive episode
5347	1B1H.11	Fear

7737	Eu34113	[X]Neurotic depression
10734	E290011	Bereavement reaction
6159	Eu50.00	[X]Eating disorders
8584	Eu34111	[X]Depressive neurosis
7604	Eu32.13	[X]Single episode of reactive depression
11098	Eu43.00	[X]Reaction to severe stress, and adjustment disorders
4597	1B1B200	Late insomnia
2188	E201.00	Hysteria
6408	Eu41011	[X]Panic attack
20089	1B1Z.00	General nervous symptom NOS
7412	1BJ..00	Loss of confidence
15220	Eu34114	[X]Persistant anxiety depression
11607	Eu43000	[X]Acute stress reaction
10290	Eu34112	[X]Depressive personality disorder
5225	E2D2z11	School refusal
9686	E2...00	Neurotic, personality and other nonpsychotic disorders
15008	1BZ..00	Nervous system symptoms NOS
10723	R2y2.12	[D]Nervous tension
20245	E283000	Acute situational disturbance
15631	1BF..00	Guilty ideas
26138	E28z.00	Acute stress reaction NOS
34064	Eu40z00	[X]Phobic anxiety disorder, unspecified
20802	E28z.12	Flying phobia
3347	E2D..11	Adolescent - emotional problem
5406	E2D3000	Sibling jealousy
10535	Eu43012	[X]Acute reaction to stress
18248	Eu40212	[X]Animal phobias
35825	Eu41112	[X]Anxiety reaction
7819	E274.00	Non-organic sleep disorders
PERSONALITY DISORDER		
15098	E21z.00	Personality disorder NOS
1363	E2C..11	Behaviour disorder
18565	E21y200	Borderline personality disorder
4515	E216.00	Inadequate personality disorder
27481	E215.00	Histrionic personality disorders
2076	E21..00	Personality disorders
1329	E2C1200	Tantrums
2040	E2C0.00	Aggressive unsocial conduct disorder
792	E21z.11	Psychopathic personality
23597	E213.00	Explosive personality disorder
6416	E2C0100	Anger reaction
5652	E210.00	Paranoid personality disorder
20255	E2C3100	Pathological gambling
6104	13HP.00	Relationship problems
2641	E2C0000	Aggressive outburst
6339	E213.11	Aggressive personality

4885	E2C1011	School refusal
4759	E215.11	Hysterical personality disorders
34881	Eu62y11	[X]Chronic pain personality syndrome
3111	13HP100	Girlfriend relationship problem
3709	E215200	Emotionally unstable personality
27945	Eu60411	[X]Hysterical personality disorder
42496	Eu60z00	[X]Personality disorder, unspecified
35763	E21y300	Passive-aggressive personality disorder
7169	E2Cy000	Breath holder
2235	E2C..00	Disturbance of conduct NEC
4531	13HP000	Boyfriend relationship problem
1293	E214100	Obsessional personality
11121	Eu91215	[X]Truancy from school
1364	E21y500	Immature personality disorder
19931	E216.13	Labile personality
3165	Eu63300	[X]Trichotillomania
23521	E2Cz000	Juvenile delinquency unspecified
20033	E21yz11	Manipulative personality
12228	E211100	Hypomanic personality disorder
21665	E216.12	Dependent personality
14979	E211.00	Affective personality disorder
17721	E2Cz.00	Unspecified disturbance of conduct
4911	E2Cy.00	Other conduct disturbances
PSYCHOSIS		
324	E2B..00	Depressive disorder NEC
1055	E135.00	Agitated depression
5879	E112.11	Agitated depression
6950	E112.13	Endogenous depression first episode
6482	E113700	Recurrent depression
1713	2841	Confused
4843	Eu22015	[X]Paranoia
14728	E110100	Single manic episode, mild
3775	E2E..00	Childhood hyperkinetic syndrome
2560	E11..12	Depressive psychoses
2113	Eu22011	[X]Paranoid psychosis
4323	E2B1.00	Chronic depression
6932	E113.11	Endogenous depression - recurrent
5565	E2E0.00	Child attention deficit disorder
16808	Eu31000	[X]Bipolar affective disorder, current episode hypomanic
6874	Eu31.00	[X]Bipolar affective disorder
3630	E....00	Mental disorders
2741	Eu30000	[X]Hypomania
1531	Eu31.11	[X]Manic-depressive illness
12831	E115.11	Manic-depressive - now depressed
1915	1BH..00	Delusions
15066	F481K00	Visual hallucinations

1914	1B1E.00	Hallucinations
12120	R001000	[D]Hallucinations, auditory
4261	E12..00	Paranoid states
14965	E13z.00	Nonorganic psychosis NOS
12173	Eu30.00	[X]Manic episode
5188	R009.00	[D]Confusion
2114	E03y300	Unspecified puerperal psychosis
4678	Eu30z11	[X]Mania NOS
3489	E11z100	Rebound mood swings
694	Eu2z.11	[X]Psychosis NOS
8478	E130.00	Reactive depressive psychosis
6387	E2A1000	Mild memory disturbance
9521	Eu30.11	[X]Bipolar disorder, single manic episode
14784	E117.00	Unspecified bipolar affective disorder
24387	Eu04.13	[X]Acute / subacute infective psychosis
3636	E13z.11	Psychotic episode NOS
41537	E030z00	Acute confusional state NOS
14656	E11..00	Affective psychoses
4033	E030.00	Acute confusional state
24264	Eu45213	[X]Hypochondriacal neurosis
595	E112.14	Endogenous depression
11994	Eu05600	[X]Organic emotionally labile [asthenic] disorder
12099	Eu32300	[X]Severe depressive episode with psychotic symptoms
9667	Eu32200	[X]Severe depressive episode without psychotic symptoms
15155	E112200	Single major depressive episode, moderate
10610	E112.00	Single major depressive episode
10239	E2A2.00	Post-concussion syndrome
5726	Eu3..00	[X]Mood - affective disorders
21985	Eu0z.11	[X]Organic psychosis NOS
17770	E130.11	Psychotic reactive depression
15053	E133.00	Acute paranoid reaction
3991	2841.11	Confusion
15099	E113.00	Recurrent major depressive episode
25694	E113300	Recurrent major depressive episodes, severe, no psychosis
16506	E112100	Single major depressive episode, mild
23932	R007z00	[D]Malaise and fatigue NOS
6075	E293000	Adjustment reaction with aggression
9183	E11z200	Masked depression
14743	E120.00	Simple paranoid state
23835	E040.11	Korsakoff's non-alcoholic psychosis
10870	Eu45214	[X]Hypochondriasis
5814	R007z11	[D]Lassitude
33751	Eu31z00	[X]Bipolar affective disorder, unspecified
17385	E114.11	Manic-depressive - now manic
6546	E112.12	Endogenous depression first episode
43324	E112500	Single major depressive episode, partial or unspec

		remission
SCHIZOPHRENIA		
854	E10..00	Schizophrenic disorders
3984	E100200	Chronic schizophrenic
8407	E10z.00	Schizophrenia NOS
2117	E107.00	Schizo-affective schizophrenia
9422	Eu25.00	[X]Schizoaffective disorders
15733	E100000	Unspecified schizophrenia
1494	E103.00	Paranoid schizophrenia
OTHER		
8913	E274800	Night terrors
2129	E274900	Nightmares
2639	E204.11	Postnatal depression
10717	U2...11	[X]Self inflicted injury
2135	E271.00	Anorexia nervosa
4106	1B74.00	Floaters seen
3009	E2F0000	Reading disorder unspecified
927	1B73.00	Flashing lights seen
2393	E270.00	Stammering or stuttering
9287	1B92.11	Stammer - symptom
6495	ZV40111	[V]Problems with speech
1366	ZV40.11	[V]Behavioural problems
2017	ZV40.13	[V]Psychological problems
13307	Eu53011	[X]Postnatal depression NOS
2107	1B9..00	Speech problem
9265	Eu46100	[X]Depersonalization - derealization syndrome
5346	E272.00	Tics
15483	E261100	Psychogenic cough
4023	E274111	Insomnia NOS
11778	Eu23200	[X]Acute schizophrenia-like psychotic disorder
2972	E2B0.00	Postviral depression
4377	E275100	Bulimia (non-organic overeating)
7743	E275.00	Other and unspecified non-organic eating disorders
15959	E263000	Psychogenic pruritus
4149	13HP200	Poor family relationship
17046	U2...00	[X]Intentional self-harm
11701	Ry16.00	[D]Slowness and poor responsiveness
11721	E274700	Somnambulism - sleep walking
12080	1BE1.00	Problem situation
8758	1BE..00	Life crisis
17378	U2...14	[X]Attempted suicide
36946	Eu50z00	[X]Eating disorder, unspecified
3869	E264400	Psychogenic dyspepsia
16093	E276.00	Non-organic enuresis
9656	Eu46011	[X]Fatigue syndrome
31014	Ry12.00	[D]Strange and inexplicable behaviour

14667	ZV40300	[V]Other behavioural problems
36992	E274300	Transient hypersomnia
2871	E264200	Cyclical vomiting - psychogenic
2923	62T1.00	Puerperal depression
3612	E2F..00	Specific delays in development
15515	E274100	Transient insomnia
16560	Eu45324	[X]Psychogenic IBS
4963	E264000	Psychogenic aerophagy
12830	Eu45322	[X]Psychogenic hyperventilat
10158	E264311	Spurious diarrhoea
17081	Eu45323	[X]Psychogenic freq micturit
15196	E273100	Head-banging
24283	Ry10.00	[D]Very low level of personal hygiene
17203	Eu50y12	[X]Psychogenic loss of appetite
23675	Eu5z.11	[X]Psychogenic physiological dysfunction NOS
23413	E261400	Psychogenic yawning
6796	Eu50511	[X]Psychogenic vomiting
8826	Eu33.15	[X]SAD - Seasonal affective disorder
12344	E272300	Gilles de la Tourette's disorder
20906	Eu45y12	[X]Globus hystericus
10982	E274311	Hypersomnia NOS
20053	E261300	Psychogenic hyperventilation
5067	E26z.00	Psychosomatic disorder NOS
33403	1B9Z.00	Speech problem NOS

Appendix 7: British National Formulary codes for psychotropic drug treatments

Product	*Name*	*Active drug*	*BNF code*
HYPNOTICS			
6361002	zopiclone tablets 3.75mg	zopiclone	4010100
6358001	ZIMOVANE tablets 7.5mg [AVENTIS]	zopiclone	4010100
6361001	zopiclone tablets 7.5mg	zopiclone	4010100
7296001	STILNOCT tablets 5mg [SANOFI S]	zolpidem tartrate	4010100
6422001	cloral betaine tablets 707mg	cloral betaine	4010100
7295001	zolpidem tablets 5mg	zolpidem tartrate	4010100
2361001	loprazolam tablets 1mg	loprazolam mesilate	4010100
2772001	nitrazepam tablets 5mg	nitrazepam	4010100
4007003	lormetazepam capsules 1mg	lormetazepam	4010100
2725001	WELLDORM tablets 707mg [ALPHASHOW]	cloral betaine	4010100
7296002	STILNOCT tablets 10mg [SANOFI S]	zolpidem tartrate	4010100
7295002	zolpidem tablets 10mg	zolpidem tartrate	4010100
4007001	lormetazepam tablets 0.5mg	lormetazepam	4010100
4007002	lormetazepam tablets 1mg	lormetazepam	4010100
4878002	triazolam tablets 250micrograms	triazolam	4010100
11725001	SONATA capsules 5mg [MEDA]	zaleplon	4010100
4878001	triazolam tablets 125micrograms	triazolam	4010100
10296001	ZIMOVANE LS tablets 3.75mg [AVENTIS]	zopiclone	4010100
11724001	zaleplon capsules 5mg	zaleplon	4010100
652001	NOCTEC capsules 500mg [SQUIBB]	chloral hydrate	4010100
4279001	nitrazepam tablets 10mg	nitrazepam	4010100
11724002	zaleplon capsules 10mg	zaleplon	4010100
11725002	SONATA capsules 10mg [MEDA]	zaleplon	4010100
1925001	triclofos elixir 500mg/5ml	triclofos sodium	4010100
4278001	nitrazepam capsules 5mg	nitrazepam	4010100
ANXIOLYTICS			

5175001	buspirone hydrochloride tablets 5mg	buspirone hydrochloride	4010200
3190003	chlordiazepoxide tablets 5mg	chlordiazepoxide hydrochloride	4010200
3190002	chlordiazepoxide capsules 10mg	chlordiazepoxide hydrochloride	4010200
3191001	chlordiazepoxide tablets 10mg	chlordiazepoxide hydrochloride	4010200
2986001	oxazepam tablets 10mg	oxazepam	4010200
3190001	chlordiazepoxide capsules 5mg	chlordiazepoxide hydrochloride	4010200
6225002	chlordiazepoxide hydrochloride tablets 10mg	chlordiazepoxide hydrochloride	4010200
2986002	oxazepam tablets 15mg	oxazepam	4010200
5176001	BUSPAR tablets 5mg [BRISTOL]	buspirone hydrochloride	4010200
5175002	buspirone hydrochloride tablets 10mg	buspirone hydrochloride	4010200
5176002	BUSPAR tablets 10mg [BRISTOL]	buspirone hydrochloride	4010200
6225001	chlordiazepoxide hydrochloride tablets 5mg	chlordiazepoxide hydrochloride	4010200
967001	TRANXENE capsules 7.5mg [BOEH INGL]	dipotassium clorazepate	4010200
967002	TRANXENE capsules 15mg [BOEH INGL]	dipotassium clorazepate	4010200
3372002	clorazepate dipotassium capsules 15mg	dipotassium clorazepate	4010200
TRICYCLIC AND RELATED ANTIDEPRESSANT DRUGS			
1873002	PROTHIADEN tablets 75mg [TEOFARMA]	dosulepin hydrochloride	4030100
4000001	lofepramine tablets 70mg	lofepramine	4030100
1867001	GAMANIL tablets 70mg [MERCK]	lofepramine	4030100
4857001	trazodone capsules 50mg	trazodone hydrochloride	4030100
1873001	PROTHIADEN capsules 25mg [TEOFARMA]	dosulepin hydrochloride	4030100
3688002	dosulepin tablets 75mg	dosulepin hydrochloride	4030100
3688001	dosulepin capsules 25mg	dosulepin hydrochloride	4030100
1855002	ANAFRANIL capsules 25mg [NOVARTIS]	clomipramine hydrochloride	4030100
3074003	amitriptyline hydrochloride modified release capsules 75mg	amitriptyline hydrochloride	4030100
3691001	doxepin capsules 10mg	doxepin hydrochloride	4030100
3359002	clomipramine capsules 25mg	clomipramine hydrochloride	4030100
3359003	clomipramine capsules 50mg	clomipramine hydrochloride	4030100
1855003	ANAFRANIL capsules 50mg [NOVARTIS]	clomipramine hydrochloride	4030100
3074001	amitriptyline hydrochloride modified release capsules 25mg	amitriptyline hydrochloride	4030100

117003	BOLVIDON tablets 30mg [ORGANON]	mianserin hydrochloride	4030100
661003	NORVAL tablets 30mg [BENCARD]	mianserin hydrochloride	4030100
1513003	MOLIPAXIN tablets 150mg [AVENTIS]	trazodone hydrochloride	4030100
1855001	ANAFRANIL capsules 10mg [NOVARTIS]	clomipramine hydrochloride	4030100
3691002	doxepin capsules 25mg	doxepin hydrochloride	4030100
1863002	SURMONTIL tablets 25mg [AVENTIS]	trimipramine maleate	4030100
1863003	SURMONTIL capsules 50mg [AVENTIS]	trimipramine maleate	4030100
4857003	trazodone tablets 150mg	trazodone hydrochloride	4030100
4857002	trazodone capsules 100mg	trazodone hydrochloride	4030100
3359001	clomipramine capsules 10mg	clomipramine hydrochloride	4030100
4190001	mianserin tablets 10mg	mianserin hydrochloride	4030100
1513001	MOLIPAXIN capsules 50mg [AVENTIS]	trazodone hydrochloride	4030100
2181001	DOTHAPAX capsules 25mg [ASHBOURNE]	dosulepin hydrochloride	4030100
1865001	EVADYNE tablets 25mg [WYETH PHAR]	butriptyline hydrochloride	4030100
4892002	trimipramine maleate tablets 25mg	trimipramine maleate	4030100
1851002	LUDIOMIL tablets 25mg [NOV/CIBA]	maprotiline hydrochloride	4030100
3692001	doxepin capsules 75mg	doxepin hydrochloride	4030100
4190003	mianserin tablets 30mg	mianserin hydrochloride	4030100
1875003	SINEQUAN capsules 50mg [PFIZER]	doxepin hydrochloride	4030100
1851001	LUDIOMIL tablets 10mg [NOV/CIBA]	maprotiline hydrochloride	4030100
2277002	PREPADINE tablets 75mg [BERK]	dosulepin hydrochloride	4030100
4892003	trimipramine maleate capsules 50mg	trimipramine maleate	4030100
1852001	LUDIOMIL tablets 75mg [NOV/CIBA]	maprotiline hydrochloride	4030100
2365001	MOTIVAL tablets [SANOFI S]	Oral	
1513002	MOLIPAXIN capsules 100mg [AVENTIS]	trazodone hydrochloride	4030100
3074002	amitriptyline hydrochloride modified release capsules 50mg	amitriptyline hydrochloride	4030100
2181002	DOTHAPAX tablets 75mg [ASHBOURNE]	dosulepin hydrochloride	4030100
3691003	doxepin capsules 50mg	doxepin hydrochloride	4030100
4858001	trazodone sugar free oral solution 50mg/5ml	trazodone hydrochloride	4030100
3361001	clomipramine modified release tablet 75mg	clomipramine hydrochloride	4030100
5994002	amoxapine tablets 50mg	amoxapine	4030100

1875002	SINEQUAN capsules 25mg [PFIZER]	doxepin hydrochloride	4030100
1857001	ANAFRANIL SR tablets 75mg [NOVARTIS]	clomipramine hydrochloride	4030100
4190002	mianserin tablets 20mg	mianserin hydrochloride	4030100
5990002	ASENDIS tablets 50mg [WYETH PHAR]	amoxapine	4030100
5990003	ASENDIS tablets 100mg [WYETH PHAR]	amoxapine	4030100
5369001	nortriptyline with fluphenazine tablets 10mg + 500micrograms	fluphenazine hydrochloride/nortriptyline hydrochloride	4030100
1861002	LENTIZOL capsules 50mg [PFIZER]	amitriptyline hydrochloride	4030100
MONOAMINE-OXIDASE INHIBITORS			
6250001	moclobemide tablets 150mg	moclobemide	4030200
6240001	MANERIX tablets 150mg [ROCHE]	moclobemide	4030200
SELECTIVE SEROTONIN RE-UPTAKE INHIBITORS			
8619001	citalopram tablets 20mg	citalopram hydrobromide	4030300
5552001	fluoxetine capsules 20mg	fluoxetine hydrochloride	4030300
6509001	paroxetine tablets 20mg	paroxetine hydrochloride	4030300
5509001	PROZAC capsules 20mg [LILLY]	fluoxetine hydrochloride	4030300
8619002	citalopram tablets 10mg	citalopram hydrobromide	4030300
6826001	sertraline tablets 50mg	sertraline hydrochloride	4030300
5552002	fluoxetine oral solution 20mg/5ml	fluoxetine hydrochloride	4030300
8604002	CIPRAMIL tablets 10mg [LUNDBECK]	citalopram hydrobromide	4030300
3507002	FAVERIN tablets 100mg [SOLVAY]	fluvoxamine maleate	4030300
6509002	paroxetine tablets 30mg	paroxetine hydrochloride	4030300
6510002	SEROXAT tablets 30mg [GLAXSK PHA]	paroxetine hydrochloride	4030300
6510001	SEROXAT tablets 20mg [GLAXSK PHA]	paroxetine hydrochloride	4030300
5552003	fluoxetine capsules 60mg	fluoxetine hydrochloride	4030300
8604001	CIPRAMIL tablets 20mg [LUNDBECK]	citalopram hydrobromide	4030300
6825001	LUSTRAL tablets 50mg [PFIZER]	sertraline hydrochloride	4030300
6510003	SEROXAT sugar-free suspension 20mg/10ml [GLAXSK PHA]	paroxetine hydrochloride	4030300
8619003	citalopram tablets 40mg	citalopram hydrobromide	4030300
8328001	escitalopram tablets 10mg	escitalopram oxalate	4030300
8604003	CIPRAMIL tablets 40mg [LUNDBECK]	citalopram hydrobromide	4030300

1438001	escitalopram tablets 20mg	escitalopram oxalate	4030300
3507001	FAVERIN tablets 50mg [SOLVAY]	fluvoxamine maleate	4030300
6826002	sertraline tablets 100mg	sertraline hydrochloride	4030300
6825002	LUSTRAL tablets 100mg [PFIZER]	sertraline hydrochloride	4030300
6509003	paroxetine sugar-free suspension 20mg/10ml	paroxetine hydrochloride	4030300
11714001	CIPRALEX tablets 10mg [LUNDBECK]	escitalopram oxalate	4030300
3506001	fluvoxamine tablets 50mg	fluvoxamine maleate	4030300
3506002	fluvoxamine tablets 100mg	fluvoxamine maleate	4030300
1911001	CIPRALEX tablets 20mg [LUNDBECK]	escitalopram oxalate	4030300
12336001	escitalopram tablets 5mg	escitalopram oxalate	4030300
5509002	PROZAC liquid 20mg/5ml [LILLY]	fluoxetine hydrochloride	4030300
5509003	PROZAC capsules 60mg [LILLY]	fluoxetine hydrochloride	4030300
12337001	CIPRALEX tablets 5mg [LUNDBECK]	escitalopram oxalate	4030300
OTHER ANTIDEPRESSANT DRUGS			
11284001	ZISPIN tablets 30mg [ORGANON]	mirtazapine	4030400
103001	EFEXOR tablets 37.5mg [WYETH PHAR]	venlafaxine hydrochloride	4030400
11282001	mirtazapine tablets 30mg	mirtazapine	4030400
365002	FLUANXOL tablets 1mg [LUNDBECK]	flupentixol dihydrochloride	4030400
1663001	venlafaxine tablets 37.5mg	venlafaxine hydrochloride	4030400
365001	FLUANXOL tablets 0.5mg [LUNDBECK]	flupentixol dihydrochloride	4030400
103002	EFEXOR tablets 75mg [WYETH PHAR]	venlafaxine hydrochloride	4030400
1663002	venlafaxine tablets 75mg	venlafaxine hydrochloride	4030400
11223002	venlafaxine modified release capsules 150mg	venlafaxine hydrochloride	4030400
11163001	EDRONAX tablets 4mg [PHARMACIA]	reboxetine mesilate	4030400
11244001	EFEXOR XL modified release capsules 75mg [WYETH PHAR]	venlafaxine hydrochloride	4030400
11244002	EFEXOR XL modified release capsules 150mg [WYETH PHAR]	venlafaxine hydrochloride	4030400
11161001	reboxetine tablets 4mg	reboxetine mesilate	4030400
3495001	flupentixol tablets 500 micrograms	flupentixol dihydrochloride	4030400
11223001	venlafaxine modified release capsules 75mg	venlafaxine hydrochloride	4030400
3495002	flupentixol tablets 1mg	flupentixol dihydrochloride	4030400

8637002	DUTONIN tablets 200mg [BMS]	nefazodone hydrochloride	4030400
13018001	mirtazapine tablets 45mg	mirtazapine	4030400
13017001	mirtazapine tablets 15mg	mirtazapine	4030400
12312001	mirtazapine orodispersible tablet 15mg	mirtazapine	4030400
4900001	tryptophan tablets 500mg	tryptophan	4030400
8638001	nefazodone tablets 100mg	nefazodone hydrochloride	4030400
12053001	mirtazapine orodispersible tablet 30mg	mirtazapine	4030400
8638002	nefazodone tablets 200mg	nefazodone hydrochloride	4030400
1663003	venlafaxine tablets 50mg	venlafaxine hydrochloride	4030400
12313001	mirtazapine orodispersible tablet 45mg	mirtazapine	4030400
SEDATING ANTIHISTAMINES/HYPNOTICS			
6987001	diphenhydramine tablets 25mg	diphenhydramine hydrochloride	03040102/04010100
6987003	diphenhydramine tablets 50mg	diphenhydramine hydrochloride	03040102/04010100
744001	PHENERGAN tablets 10mg [AVENTIS]	promethazine hydrochloride	03040102/04010100/04060000
744002	PHENERGAN tablets 25mg [AVENTIS]	promethazine hydrochloride	03040102/04010100/04060000
4616002	promethazine hydrochloride tablets 25mg	promethazine hydrochloride	03040102/04010100/04060000
4616001	promethazine hydrochloride tablets 10mg	promethazine hydrochloride	03040102/04010100/04060000
744003	PHENERGAN elixir 5mg/5ml [AVENTIS]	promethazine hydrochloride	03040102/04010100/04060000
6297001	promethazine hydrochloride elixir 5mg/5ml	promethazine hydrochloride	03040102/04010100/04060000
SEDATING ANTIHISTAMINES/ANXIOLYTICS			
3809002	hydroxyzine tablets 25mg	hydroxyzine hydrochloride	03040102/04010200
3809001	hydroxyzine tablets 10mg	hydroxyzine hydrochloride	03040102/04010200
64001	ATARAX tablets 10mg [PFIZER]	hydroxyzine hydrochloride	03040102/04010200
64002	ATARAX tablets 25mg [PFIZER]	hydroxyzine hydrochloride	03040102/04010200
HYPNOTICS/ANXIOLYTICS/CONTROL OF EPILEPSY/SKELETAL MUSCLE RELAXANTS/ANXIOLYTICS AND NEUROLEPTICS (IN ANAESTHESIA)			
2783002	diazepam tablets 5mg	diazepam	04010100/04010200/04080100/10020200/15010401
2783001	diazepam tablets 2mg	diazepam	04010100/04010200/04080100/10020200/15010401
2783003	diazepam tablets 10mg	diazepam	04010100/04010200/04080100/10020200/15010401
3590002	diazepam capsules 2mg	diazepam	04010100/04010200/04080100/10020200/15010401
3590003	diazepam capsules 5mg	diazepam	04010100/04010200/04080100/10020200/15010401
2784001	diazepam elixir 2mg/5ml	diazepam	04010100/04010200/04080100/10020200/15010401

HYPNOTICS/ALCOHOL DEPENDENCE			
3293001	clomethiazole capsules 192mg	clomethiazole	04010100/04100100
431001	HEMINEVRIN capsules 192mg [ASTRAZENEC]	clomethiazole	04010100/04100100
HYPNOTICS/ANXIOLYTICS AND NEUROLEPTICS (IN ANAESTHESIA)			
4784001	temazepam capsules 10mg	temazepam	04010100/15010401
5188002	temazepam tablets 10mg	temazepam	04010100/15010401
5188003	temazepam tablets 20mg	temazepam	04010100/15010401
4784002	temazepam capsules 20mg	temazepam	04010100/15010401
5779001	TEMAZEPAM PLANPAK capsules [???]	temazepam	04010100/15010401
5188001	temazepam sugar free elixir 10mg/5ml	temazepam	04010100/15010401
4784003	temazepam capsules 15mg	temazepam	04010100/15010401
HYPNOTICS/UNLICENSED PRODUCT			
8196001	melatonin capsules 3mg	melatonin	04010100/23010000
ANXIOLYTICS/CONTROL OF EPILEPSY			
3351001	clobazam capsules 10mg	clobazam	04010200/04080100
3351002	clobazam tablets 10mg	clobazam	04010200/04080100
377001	FRISIUM capsules 10mg [AVENTIS]	clobazam	04010200/04080100
ANXIOLYTICS/DRUGS USED IN STATUS EPILEPTICUS/SKELETAL MUSCLE RELAXANTS/ANXIOLYTICS AND NEUROLEPTICS (IN ANAESTHESIA)/FEBRILE CONVULSIONS			
2466002	STESOLID rectal tubes 10mg [ACTAVIS]	diazepam	04010200/04080200/10020200/15010401/04080300
2466001	STESOLID rectal tubes 5mg [ACTAVIS]	diazepam	04010200/04080200/10020200/15010401/04080300
294001	DIAZEPAM RECTUBES rectal tubes 5mg [CP PHARM]	diazepam	04010200/04080200/10020200/15010401/04080300
3592002	diazepam rectal tubes 10mg	diazepam	04010200/04080200/10020200/15010401/04080300
294002	DIAZEPAM RECTUBES rectal tubes 10mg [CP PHARM]	diazepam	04010200/04080200/10020200/15010401/04080300
3591002	diazepam suppository 10mg	diazepam	04010200/04080200/10020200/15010401/04080300
3592001	diazepam rectal tubes 5mg	diazepam	04010200/04080200/10020200/15010401/04080300
ANXIOLYTICS/SKELETAL MUSCLE RELAXANTS			
4101002	meprobamate tablets 400mg	meprobamate	04010200/10020200
4101001	meprobamate tablets 200mg	meprobamate	04010200/10020200
3296001	chlormezanone tablets 200mg	chlormezanone	04010200/10020200

2786001	lorazepam tablets 1mg	lorazepam	04010200/15010401
2786002	lorazepam tablets 2.5mg	lorazepam	04010200/15010401

ANTIPSYCHOTIC DRUGS/TRICYCLIC AND RELATED ANTIDEPRESSANT DRUGS

982002	TRIPTAFEN M tablets 2mg + 10mg [GOLDSHIELD]	amitriptyline hydrochloride/perphenazine	04020100/04030100
982001	TRIPTAFEN tablets 2mg + 25mg [GOLDSHIELD]	amitriptyline hydrochloride/perphenazine	04020100/04030100
5296002	amitriptyline hydrochloride with perphenazine tablets 25mg + 2mg	amitriptyline hydrochloride/perphenazine	04020100/04030100
719001	PARSTELIN tablets [GLAXSK CON]		

TRICYCLIC AND RELATED ANTIDEPRESSANT DRUGS/NEUROPATHIC PAIN/PROPHYLAXIS OF MIGRAINE/DRUGS FOR URINARY FREQUENCY, ENURESIS & INCONTINENCE

2776002	amitriptyline hydrochloride tablets 25mg	amitriptyline hydrochloride	04030100/04070300/04070402/07040200
2776003	amitriptyline hydrochloride tablets 50mg	amitriptyline hydrochloride	04030100/04070300/04070402/07040200
2776001	amitriptyline hydrochloride tablets 10mg	amitriptyline hydrochloride	04030100/04070300/04070402/07040200
1869002	TRYPTIZOL tablets 25mg [M S D]	amitriptyline hydrochloride	04030100/04070300/04070402/07040200
1869001	TRYPTIZOL tablets 10mg [M S D]	amitriptyline hydrochloride	04030100/04070300/04070402/07040200
1869003	TRYPTIZOL tablets 50mg [M S D]	amitriptyline hydrochloride	04030100/04070300/04070402/07040200

TRICYCLIC AND RELATED ANTIDEPRESSANT DRUGS/NEUROPATHIC PAIN/PROPHYLAXIS OF MIGRAINE/DRUGS FOR URINARY FREQUENCY, ENURESIS & INCONTINENCE/UNLICENSED MEDICINAL PRODUCT (SPECIALS)

1871001	TRYPTIZOL sugar free mixture 10mg/5ml [M S D]	amitriptyline hydrochloride	04030100/04070300/04070402/07040200/23000000
7191003	amitriptyline hydrochloride sugar free oral solution 10mg/5ml	amitriptyline hydrochloride	04030100/04070300/04070402/07040200/23000000

TRICYCLIC AND RELATED ANTIDEPRESSANT DRUGS/NEUROPATHIC PAIN/DRUGS FOR URINARY FREQUENCY, ENURESIS & INCONTINENCE

4303001	nortriptyline tablets 10mg	nortriptyline hydrochloride	04030100/04070300/07040200
4304002	nortriptyline capsules 25mg	nortriptyline hydrochloride	04030100/04070300/07040200
2887001	imipramine tablets 10mg	imipramine hydrochloride	04030100/07040200
1859002	TOFRANIL tablets 25mg [NOVARTIS]	imipramine hydrochloride	04030100/07040200
2887002	imipramine tablets 25mg	imipramine hydrochloride	04030100/07040200
1859003	TOFRANIL syrup 25mg/5ml [NOVARTIS]	imipramine hydrochloride	04030100/07040200

OTHER ANTIDEPRESSANT DRUGS/DRUGS FOR URINARY FREQUENCY, ENURESIS & INCONTINENCE/TREATMENT OF DIABETIC NEPHROPATHY AND NEUROPATHY

12664001	YENTREVE gastro-resistant capsules 20mg [LILLY]	duloxetine hydrochloride	04030400/07040200/06010500

13003001	CYMBALTA gastro-resistant capsules 60mg [LILLY]	duloxetine hydrochloride	04030400/07040200/06010500
13001001	duloxetine gastro-resistant capsules 60mg	duloxetine hydrochloride	04030400/07040200/06010500

Appendix 8: Read codes for problems of vision, hearing and balance

Blindness and visual impairment (including loss of visual fields and low visual acuity)

Read Code	Read Term
F49z.00	Visual loss NOS
6689	Registered blind
668B.00	Poor visual acuity
F484.00	Visual field defects
1B75.00	Loss of vision
F49..00	Blindness and low vision
1B77.00	Deteriorating vision
F490.00	Blindness, both eyes
2B78.00	O/E - visual acuity L-eye=6/60
F49..12	Low vision
F49..11	Impaired vision
2B68.00	O/E - visual acuity R-eye=6/60
F495000	Blindness, one eye, unspecified
6688.11	Registered partially blind
2B7A.11	O/E - blind L-eye
2B6A.11	O/E - blind R-eye
F48y011	Cloudy vision NOS
F492.00	Low vision, both eyes
F496.00	Low vision, one eye
668C.00	Certificate of vision impairment
F484500	Blind spot scotoma
F481100	Sudden visual loss
F49y.00	Visual loss, one eye, unqualified
F49z.11	Acquired blindness
F486.00	Night blindness
F484D00	Peripheral visual field defect
SJ0z.11	Blindness - traumatic - NOS
2B6B.00	O/E - R-eye completely blind
2B7B.00	O/E - L-eye completely blind
F492z00	Low vision, both eyes NOS
F484000	Unspecified visual field defect
F492000	Low vision, both eyes unspecified
F4H7300	Cortical blindness
Z9E2.00	Optical low vision aid provision
8D3..13	Visual aid provision
F490z00	Blindness both eyes NOS
F496z00	Low vision, one eye NOS
2B6E.00	O/E - visual acuity R-eye=3/60
F495A00	Acquired blindness, one eye
2B7E.00	O/E - visual acuity L-eye=3/60
F48y012	Dull vision NOS
2B7L.00	O/E - pinhole visual acuity L-eye=6/60

2B6L.00	O/E - pinhole visual acuity R-eye=6/60
Z9E3100	Provision of magnifier low vision aid - near
F496000	Low vision, one eye, unspecified
2B7T.00	O/E - L-eye visual acuity (corrected) 1/60
Z9E3300	Provision of low vision stand magnifier
2B6T.00	O/E - R-eye visual acuity (corrected) 1/60
F404200	Blind hypertensive eye
F491000	One eye blind, one eye low vision
2B82.00	O/E - near vision abnormal
F404100	Blind hypotensive eye
2B6V.00	O/E - R-eye visual acuity (corrected) 2/60
F490000	Unspecified blindness both eyes
2B7V.00	O/E - L-eye visual acuity (corrected) 2/60
F484B00	Sector or arcuate visual defect NOS
F490100	Both eyes total visual impairment
F465300	After-cataract with vision obscured
2B6S.00	O/E - pinhole R-eye completely blind
8F6..11	Blind rehabilitation
Z9E3500	Provision of spectacle low vision aid - near
F486300	Congenital night blindness NOS
2B6X.00	O/E - R-eye visual acuity (corrected) 5/60
2B7S.00	O/E - pinhole L-eye completely blind
F491.00	Better eye: low vision, Lesser eye: profound VI
Z9E3B00	Near low vision aid - integral spectacle telescope
2B6W.00	O/E - R-eye visual acuity (corrected) 4/60
2B7W.00	O/E - L-eye visual acuity (corrected) 4/60
F490900	Acquired blindness, both eyes
F484800	Blind spot area scotoma NOS
F491z00	One eye blind, one eye low vision NOS
2B7X.00	O/E - L-eye visual acuity (corrected) 5/60
F496600	Lesser eye: moderate VI, Better eye: normal vision
F496200	Lesser eye: severe VI, Better eye: near normal vision
Z9E4.00	Provision of optical low vision aid - distance
F494.00	Legal blindness USA
Z9E5.00	Provision of non-optical low vision aid
F496500	Lesser eye: moderate VI, Better eye: near normal vision
F495600	Lesser eye: near total VI, Better eye: normal vision
8F61.00	Blind rehabilitation
F496300	Lesser eye: severe VI, Better eye: normal vision
F486z00	Night blindness NOS
F492300	Better eye: moderate VI, Lesser eye: low vision unspecified
F495100	Lesser eye: total visual impairment, Better eye: unspecified
F495500	Lesser eye: near total VI, Better eye: near normal vision
F491500	Better eye: moderate VI, Lesser eye: blind, unspecified
F495800	Lesser eye: profound VI, Better eye: near normal vision
ZN56800	Blind telephone user

Z9E3900	Near low vision aid - clip-on spectacle magnifier
Z9E3600	Provision of telescopic spectacles

Glaucoma, cataract, retinal disorders

F45..00	Glaucoma
66T1.00	Glaucoma monitoring
F451.00	Open-angle glaucoma
F452.00	Primary angle-closure glaucoma
F45y200	Low tension glaucoma
F452z00	Primary angle-closure glaucoma NOS

Cataract

F46z.00	Cataract NOS
F46..00	Cataract
F466.00	Bilateral cataracts
F462.00	Traumatic cataract
7263.12	Extracapsular extraction of cataract
7266.11	Other extraction of cataract
22E5.00	O/E - cataract present
F461.00	Senile cataract
2BT0.00	O/E - Right cataract present
P33..00	Congenital cataract and lens anomalies
7264.11	Intracapsular extraction of cataract
P330.00	Congenital cataract, unspecified

Retinal disorders

F420000	Background diabetic retinopathy
F41z.00	Retinal detachment NOS
F421000	Unspecified background retinopathy
F420.00	Diabetic retinopathy
F423811	Retinal vein thrombosis
2BB5.00	O/E - retinal haemorrhages
7271z00	Photocoagulation of retina for detachment NOS
F427z11	Hereditary macular degeneration
8HBD.00	Retinopathy follow up
F42y500	Retinal haemorrhage NOS
F421300	Hypertensive retinopathy
F42z.00	Retinal disorder NOS
F41..11	Retinal tears
F432100	Retinitis NOS
F425000	Unspecified senile macular degeneration
F427600	Retinitis pigmentosa
F423.00	Retinal vascular occlusion

7277000	Peel of epiretinal (fibroglial) membrane
F411100	Flat retinoschisis
68AB.00	Diabetic digital retinopathy screening offered
F42y900	Macular oedema
AD02.00	Toxoplasma chorioretinitis
F425411	Macular cyst or hole
F433000	Unspecified chorioretinal scar
2BBT.00	O/E - right eye proliferative diabetic retinopathy
F42yC00	Retinal ischaemia
SE14.00	Commotio retinae

Deafness and hearing impairment (including use of a hearing aid)

1C12.00	Hearing difficulty
F591.00	Sensorineural hearing loss
8D2..12	Hearing aid provision
F590.00	Conductive hearing loss
2DG..00	Hearing aid worn
3134300	Hearing test abnormal
8HT2.00	Referral to hearing aid clinic
ZE87.00	Hearing loss
F582.00	Unspecified sudden hearing loss
F590000	Unspecified conductive hearing loss
F591000	Unspecified perceptive hearing loss
9N0b.00	Seen in hearing aid clinic
F591600	Sensorineural hearing loss, bilateral
8D2..00	Auditory aid
ZE87.18	Hearing impairment
ZE87.19	Hearing impaired
ZE87.13	Hard of hearing
ZV41200	[V]Problems with hearing
F591100	Sensory hearing loss
ZE87.12	Difficulty hearing
Z8B5311	Uses hearing aid
F581200	Noise-induced hearing loss
1C16.00	Deteriorating hearing
8D2Z.00	Auditory aid NOS
F590500	Conductive hearing loss, bilateral
3134400	Hearing test bilateral abnormality
F591200	Neural hearing loss
P40..00	Ear anomalies with hearing impairment
ZE87.16	HI - Hearing impairment
Z9E8100	Hearing aid provision
Z8B5500	Difficulty using hearing aid
ZE87.17	HL - Hearing loss
F59y.00	Other specified forms of hearing loss

ZV45G00	[V]Presence of external hearing-aid
ZE87.20	Hearing impaired
F592.11	Mixed hearing loss
3134500	Hearing test left abnormality
F591z00	Perceptive hearing loss NOS
ZE3..00	Distorted hearing
3134600	Hearing test right abnormality
8D2..11	Auditory aid provision
F592100	Mixed conductive and sensorineural hearing loss, bilateral
ZL71600	Referral to registered hearing aid dispenser
Z911.00	Hearing aid procedure
P40z.00	Other and unspecified ear anomaly with hearing impaired
F591.14	Perceptive hearing loss
ZE63.00	Hearing worse
8D21.00	Provide head worn hearing aid
1C17.00	Hearing aid problem
Z8B5.00	Ability to use hearing aid
Z8B5300	Does use hearing aid
Z8B5200	Unable to use hearing aid
F590300	Conductive hearing loss due to disorder of middle ear
ZE84200	Hearing for voice impaired
1C18.00	Difficulty hearing with background noise
Z8B5400	Does not use hearing aid
ZE86.00	Difficulty hearing in noise
F590600	Conduct hear loss,unilat+unrestric hearing on contralat side
Z911500	Checking hearing aid
Z911B00	Attention to hearing aid
F590200	Conductive hearing loss due to disorder of tympanic membrane
F5A..00	Hearing impairment
F584300	Impaired auditory discrimination
Z911300	Adjust hearing aid settings
F591y00	Combined perceptive hearing loss
Z911E00	Fit ear mould for existing hearing aid
7317C00	Placement of hearing implant in middle ear
Z8B5100	Able to use hearing aid
P400.00	Ear anomalies with hearing impaired, unspecified
ZV53D00	[V]Adjustment and management of implanted hearing device
7308400	Placement of hearing implant in external ear
P40zz00	Ear anomaly with hearing impaired NOS
2DH0.00	Uses hearing loop
8D22.00	Provide body worn hearing aid
ZT12711	Voice associated with hearing loss
Z911900	Putting on hearing aid
Z911400	Changing hearing aid battery
F590100	Conductive hearing loss due to disorder of external ear
8D24.00	Replace hearing aid battery

FyuU100	[X]Other specified hearing loss
F590y00	Combined conductive hearing loss
7317D00	Attention to hearing implant in middle ear
P402.00	Other external ear anomaly with hearing impairment
Z911A00	Listening for feedback whistle of hearing aid
F591300	Central hearing loss
Z9E3314	Auditory aid provision
P402z00	Other external ear anomaly with hearing impairment NOS
Z911800	Turning off hearing aid
F590400	Conductive hearing loss due to disorder of inner ear
7308600	Removal of hearing implant from external ear
7308500	Attention to hearing implant in external ear
Z911700	Switching on hearing aid

Perforated ear drum

F542.11	Ear drum perforation
S82v000	Open wound of ear drum
2D99.00	O/E - tympanic membrane tear
F542600	Tympanic membrane perforation, less than 50 %
F542300	Other marginal tympanic membrane perforation
F542500	Tympanic membrane perforation, more than 50 %
FyuP900	[X]Other perforations of tympanic membrane
S82v012	Open wound of tympanic membrane without complication
F542400	Tympanic membrane with multiple perforations
F542511	Tympanic membrane - total perforation
FyuP800	[X]Other marginal perforations of tympanic membrane

Non-acute otitis media

F52z.00	Otitis media NOS
F51..00	Nonsuppurative otitis media + eustachian tube disorders
F52..00	Suppurative and unspecified otitis media
F514200	Catarrhal otitis media NOS
F514100	Serous otitis media NOS
F514z00	Nonsuppurative otitis media NOS
A552.00	Postmeasles otitis media
F524.00	Purulent otitis media NOS
F514.00	Unspecified nonsuppurative otitis media
F524000	Bilateral suppurative otitis media
F514300	Mucoid otitis media NOS
F514000	Allergic otitis media NOS
FyuP400	[X]Otitis media in viral diseases classified elsewhere
FyuP500	[X]Otitis media in other diseases classified elsewhere
F512.12	Chronic secretory otitis media, mucoid
F523.00	Chronic suppurative otitis media NOS
F511.00	Chronic otitis media with effusion, serous
F512.00	Chronic otitis media with effusion, mucoid
F518.00	Chronic otitis media with effusion, unspecified

F521.00	Chronic suppurative otitis media, tubotympanic
F511.11	Chronic secretory otitis media, serous
F511z00	Chronic serous otitis media NOS
F513.00	Chronic otitis media with effusion, other
F511100	Serosanguinous chronic otitis media
F513z00	Other chronic nonsuppurative otitis media NOS
F522.00	Chronic suppurative otitis media, atticoantral
F512z00	Chronic mucoid otitis media NOS
F513100	Chronic otitis media with effusion, purulent
F513111	Chronic secretory otitis media, purulent
F513000	Chronic allergic otitis media
F512100	Mucosanguinous chronic otitis media
FyuP200	[X]Other chronic suppurative otitis media

Disorders of balance

R004300	[D]Vertigo NOS
F563.00	Labyrinthitis
F561100	Benign paroxysmal positional vertigo or nystagmus
F560.00	Meniere's disease
F563500	Viral labyrinthitis
1491.12	H/O: vertigo
R004400	[D]Acute vertigo
F561.00	Other and unspecified peripheral vertigo
F561200	Acute vestibular neuronitis
F561400	Otogenic vertigo
F563z00	Labyrinthitis NOS
F56z.00	Vestibular disorders and vertiginous syndromes NOS
F565.00	Labyrinthine dysfunction
F56..00	Vertiginous syndromes, other disorders of vestibular system
1491	H/O: vertigo/Meniere's disease
F56y.00	Other labyrinth disorders
F562.00	Vertigo of central origin
1491.11	H/O: Meniere's disease
A78y000	Epidemic vertigo
F561300	Recurrent vestibular neuronitis
F561000	Unspecified peripheral vertigo
F563000	Unspecified labyrinthitis
F560z00	Meniere's disease NOS
F561z00	Other peripheral vertigo NOS
F56X.00	Disorder of vestibular function, unspecified
F560000	Unspecified Meniere's disease
F4K5400	Nystagmus with vestibular disorder
F562z00	Vertigo of central origin NOS
F561411	Aural vertigo
F565z00	Labyrinthine dysfunction NOS
F565000	Unspecified labyrinthine dysfunction

F563400	Ototoxicity - labyrinthine
F560300	Active vestibular Meniere's disease
F563100	Serous labyrinthitis
F562100	Malignant positional vertigo
F565200	Hyperactive bilateral labyrinthine dysfunction
F560100	Active cochleovestibular Meniere's disease
F565100	Hyperactive unilateral labyrinthine dysfunction
F560200	Active cochlear Meniere's disease
F563411	Drug ototoxicity -labyrinthine
F565300	Hypoactive unilateral labyrinthine dysfunction
FyuQ200	[X]Other disorders of vestibular function
F563311	Purulent labyrinthitis
F563300	Suppurative labyrinthitis
FyuQ400	[X]Disorder of vestibular function, unspecified
F565500	Labyrinthine unilateral reactive loss
F565400	Hypoactive bilateral labyrinthine dysfunction
F563200	Circumscribed labyrinthitis
FyuQ100	[X]Other peripheral vertigo

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